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UNITED STATES DISTRICT COURT
DISTRICT OF OREGON

KELSEY CASCADIA ROSE JULIANA;
XIUHTEZCATL TONATIUH M., through
his Guardian Tamara Roske-Martinez; et al.

Plaintiffs,

v.

The UNITED STATES OF AMERICA; et al.,
Defendants.

Case No.: 6:15-cv-01517-TC

**PLAINTIFFS' PROPOSED PRETRIAL
ORDER**

Pursuant to Fed. R. Civ. P. and LR 16-5, Plaintiffs Kelsey Cascadia Rose Juliana, et al. (“Plaintiffs”), and Defendants United States, et al. (“Defendants”) by and through their undersigned counsel respectfully submit the following Proposed Pretrial Order. Local Rule 16-5 requires the parties to prepare and file a pretrial order to “frame the issues for trial,” as “there is no court-approved stipulation or order dispensing with the need for a pretrial order.” It is Plaintiffs' position that, during the status conference on August 27, this Court ordered the parties to file a pretrial order on October 15, 2018. At the August 27 status conference, after Plaintiffs proposed dates for exchange of the proposed pretrial order, Defendants stated they needed to discuss dates internally before they would confer with Plaintiffs on dates, but that they did not foresee any major objections to dates proposed by Plaintiffs. However, Defendants did not confer with Plaintiffs after the August 27 status conference on the pretrial order. In an attempt to meet the October 15 deadline, on October 5, Plaintiffs provided Defendants with Plaintiffs' proposed pretrial order, asking that Defendants provide their input and sections on or before October 12. Defendants refused to provide any input and refused to provide any sections, taking the position that a pretrial order is not required. As such, Plaintiffs are providing the Court with their proposed pretrial order and will be prepared to discuss the issue at the pretrial conference.

I. NATURE OF THE ACTION

This case is brought by Plaintiffs pursuant to 28 U.S.C. § 1331, 28 U.S.C § 2201, and 28 U.S.C. § 2202, and the United States Constitution. Plaintiffs allege that Defendants' actions and inactions in establishing, promoting, and implementing a fossil fuel-based energy system violate the Due Process clause of the Fifth Amendment, the Equal Protection principles in the Fifth Amendment, Plaintiffs' unenumerated right to a stable climate system, and the Public Trust Doctrine. Plaintiffs seek declaratory and injunctive relief enjoining the Defendants'

unconstitutional conduct, as well as an award of reasonable attorneys' fees, expert witness' fees, and costs. This case is scheduled for a bench trial before Judge Aiken beginning October 29, 2018.

II. JURISDICTION

Subject to Defendants' objections noted below, this Court has subject matter jurisdiction over the claims in Plaintiffs' First Amended Complaint (Doc. 7) pursuant to the Fifth Amendment of the United States Constitution, 28 U.S.C. § 1331 (federal question jurisdiction), 28 U.S.C. § 2201 (creation of a remedy), and 28 U.S.C. § 2202 (further relief). This action arises under the United States Constitution. Plaintiffs bring several claims alleging multiple violations of the U.S. Constitution and the Public Trust Doctrine giving this Court subject matter jurisdiction over said claims. This case has never been, and is not now, a statutory case under the Administrative Procedure Act.

Defendants contend*

III. AGREED FACTS¹

The following facts are admitted by the parties:

1. Plaintiffs are twenty-one individual children and youth who reside throughout the United States of America; Earth Guardians, an organization of young activists, artists and musicians from across the globe who advocate to create a sustainable world for themselves and future generations; and Future Generations, by and through their legal guardian, Dr. James Hansen.

¹ For the convenience of the Court and the parties, Plaintiffs have provided footnotes for each fact referenced herein that includes the name of the source that contains the factual information referenced, as well as Bates numbers, docket number and Motion *in limine* exhibit number (if available). For those agreed facts that are admissions from Defendants' answer (Doc. 98), Plaintiffs have provided a citation to the paragraph number that contains the admission included as an agreed fact.

2. **Defendants are *.**

3. Greenhouse gases (GHGs) are those gases—such as water vapor (H₂O), carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), ozone (O₃), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride—that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth’s atmosphere.²

4. Carbon dioxide (CO₂) is the principal GHG causing climate change. The concentration of CO₂ in the atmosphere has been building up due to human-related emissions primarily from burning fossil fuels (coal, oil, and natural gas) and the clearing of forests.³

5. The Environmental Protection Agency (EPA) “has concluded under specific provisions of the Clean Air Act that, combined, emissions of six well-mixed GHGs are the primary and best understood drivers of current and projected climate change. 74 FR 66496 (section 202); 81 FR 54422 (section 231).” Answer ¶ 7.

6. Human activity, in particular elevated concentrations of GHGs is likely to have been the dominant cause of observed warming since the mid-1900s. Answer ¶ 217.

7. Fossil fuel extraction, development, and consumption produce CO₂ emissions and past emissions of CO₂ from such activities have increased the atmospheric concentration of CO₂. Answer ¶ 7.

8. Methane is both the principle constituent of natural gas and a potent greenhouse gas

² U.S. Energy Info. Admin., March 2018: Monthly Energy Review 189 (2018), <https://www.eia.gov/totalenergy/data/monthly/archive/00351803.pdf> [Doc. 270-97; Bates P00000027839-P00000028082, at P00000028037].

³ U.S. Global Change Research Program, Second National Assessment: Global Climate Change Impacts in the United States (2009), <https://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf> [Doc. 299-224; Bates P00000034774-P00000034969, at P00000034791].

contributing to climate change. Answer ¶ 127.

9. There is a scientific consensus that the buildup of GHGs (including CO₂) due to human activities (including the combustion of fossil fuels) is changing the global climate at a pace and in a way that threatens human health and the natural environment. Answer ¶ 202.

10. GHG emissions (including CO₂) from fossil fuel combustion have contributed to increasing atmospheric GHG concentrations and, therefore, the global energy imbalance in the climate system. Answer ¶ 202.

11. Atmospheric CO₂ concentrations over 280 ppm have led to an energy imbalance compared to the pre-industrial era. Answer ¶ 203.

12. The current energy imbalance is on the order of 0.5 to 1.0 watts/m². Answer ¶ 203.

13. Greenhouse gases in the atmosphere act like a blanket over the Earth, trapping energy received from the sun. Answer ¶ 205.

14. Greenhouse gases released into the atmosphere slow the release of heat into space, keeping the Earth warmer than it would be otherwise. Answer ¶ 205.

15. Increasing greenhouse gas concentrations in the atmosphere will lead to further warming. Answer ¶ 205.

16. CO₂ emissions are currently altering the atmosphere's composition and will continue to alter Earth's climate for thousands of years. Answer ¶ 206.

17. A substantial portion of every ton of CO₂ emitted by humans persists in the atmosphere for as long as a millennium or more. Answer ¶ 206.

18. If greenhouse gas emissions continue at present amounts, global temperatures are projected to increase by 2.5 degrees to more than 11 degrees F by 2100, depending on future emissions scenarios and the responsiveness of the climate system. Answer ¶¶ 245, 247.

19. Average atmospheric CO₂ concentrations were approximately 280 ppm in the late 1700s, before the Industrial Revolution. Atmospheric CO₂ concentrations have risen approximately 120 ppm since the late 1700s and about half of that increase occurred after 1980. Answer ¶ 209.

20. Monthly global average atmospheric CO₂ concentrations exceeded 400 ppm for the first time in March 2015, a level unprecedented for at least 2.6 million years. Answer ¶¶ 209, 130.

21. Since 1901, the average surface temperature across the contiguous 48 states has risen at an average rate of 0.14°F per decade. Answer ¶ 217.

22. In its report *WMO Statement on the State of the Global Climate in 2017*, the World Meteorological Organization (WMO) reported: “The global mean temperature in 2017 was approximately 1.1 degrees C above the pre-industrial era.”⁴

23. The U.S. Global Change Research Program’s 2017 *Fourth National Climate Assessment* reported: “Global annually averaged surface air temperature has increased by about 1.8°F (1.0°C) over the last 115 years (1901–2016). This period is now the warmest in the history of modern civilization. The last few years have also seen record-breaking, climate-related weather extremes, and the last three years have been the warmest years on record for the globe. These trends are expected to continue over climate timescales.”⁵

24. The U.S. Global Change Research Program’s 2017 *Fourth National Climate Assessment* reported: “This assessment concludes, based on extensive evidence, that it is extremely likely that human activities, especially emissions of greenhouse gases, are the dominant cause of the

⁴ Doc. 341-376 at P00000084588; *see also* Answer ¶ 210 (0.9 degrees C above pre-industrial temperatures in January 2017).

⁵ U.S. Global Change Research Program, Climate Science Special Report, Fourth National Climate Assessment (NCA4), Vol. I (2017) [Doc. 341-309; Bates P00000071751-P00000072227, at P00000071766].

observed warming since the mid-20th century. For the warming over the last century, there is no convincing alternative explanation supported by the extent of the observational evidence.”⁶

25. The average rate of warming over the past 30 years has been higher than over the past 100 years. Answer ¶ 217. The more rapid the rate of climate change, the more challenging it is for humans and natural systems to adapt to it. Answer ¶ 211.

26. Climate change is damaging human and natural systems, increasing the risk of loss of life, and requiring adaptation on larger and faster scales than current species have successfully achieved in the past, potentially increasing the risk of extinction or severe disruption for many species. Answer ¶ 213.

27. In 1959, mean atmospheric CO₂ concentrations as measured at NOAA’s Muana Loa Observatory was 315.97 ppm, while in 2017 the mean atmospheric CO₂ concentration was 406.53 ppm.⁷

28. Under standard operating circumstances, liquefying natural gas requires the energy equivalent of 10% of the gas being exported. Answer ¶ 199.

29. Burning coal emits the largest amount of CO₂ in comparison to burning other fossil fuels, emitting approximately 214.3–228.6 pounds of CO₂ per million British thermal units (BTU) of energy depending on the type of coal.⁸

⁶ U.S. Global Change Research Program, Climate Science Special Report, Fourth National Climate Assessment (NCA4), Vol. I (2017) [Doc. 341-309; Bates P00000071751-P00000072227, at P00000071766].

⁷ Doc. 341-325 at P00000073775.

⁸ How Much Carbon Dioxide is Produced When Different Fuels Are Burned?, Energy Info. Admin., <https://www.eia.gov/tools/faqs/faq.php?id=73&t=11>. [Doc. 270-51; Bates P00000017943].

30. Burning motor gasoline emits an average of 157 pounds of CO₂ per one million BTU.⁹

31. Burning natural gas emits an average of 117 pounds of CO₂ per one million BTU.¹⁰

32. Diesel fuel contains about 15% more carbon per gallon, and thus emits more CO₂ per gallon burned than gasoline.¹¹

33. Aviation CO₂ emissions from burning jet fuel occur in the climatically sensitive upper troposphere and lower stratosphere where they may have a disproportionate impact on climate.¹²

34. There has been an increase in permafrost thaw in Alaska. As organic matter frozen in the permafrost thaws (including from peat bogs), it will decay, creating emissions of methane and CO₂ that can lead to more warming. Methane releases from Arctic permafrost have been observed. CO₂ and methane released from permafrost under a high-emissions scenario has been projected to lead to additional warming of 0.07°F to 1.2°F by 2100. Answer ¶ 224.

35. Prior to 1899, some scientists published estimates of the impact that elevated CO₂ concentrations could have on global temperature and understood that CO₂ was an important factor in determining global temperatures. Answer ¶ 131.

⁹ Power Sector Carbon Dioxide Emissions Fall Below Transportation Sector Emissions, U.S. Energy Info. Admin.: Today in Energy (Dec. 19, 2017), <https://www.eia.gov/todayinenergy/detail.php?id=34192>. [Doc. 270-102; Bates P00000027314-P00000027316, at P00000027315].

¹⁰ Power Sector Carbon Dioxide Emissions Fall Below Transportation Sector Emissions, U.S. Energy Info. Admin.: Today in Energy (Dec. 19, 2017), <https://www.eia.gov/todayinenergy/detail.php?id=34192>. [Doc. 270-102; Bates P00000027314-P00000027316, at P00000027315].

¹¹ U.S. Env'tl. Prot. Agency, EPA-420-R-18-001, Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2017, at 71 (2018), <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100TGDW.pdf>. [Doc. 270-105; Bates P00000028212- P00000028369, at P00000028287].

¹² Fed. Aviation Admin., Aviation Emissions, Impacts & Mitigation: A Primer 10 (2015), https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/media/Primer_Jan2015.pdf. [Doc. 270-148; Bates P00000026475- P00000026516, at P00000026488].

36. By the early 1900s, some scientists had studied the potential impacts of increasing atmospheric concentrations of CO₂ on global climate change. Answer ¶ 131.

37. For over fifty years, some officials and persons employed by the federal government have been aware of a growing body of scientific research concerning the effects of fossil fuel emissions on atmospheric concentrations of CO₂, including that increased concentrations of atmospheric CO₂ could cause measurable long-lasting changes to the global climate, resulting in an array of severe, deleterious effects to human beings, which will worsen over time. Answer ¶ 1.

38. By the 1950s, the Department of Defense, through the Office of Naval Research, began to fund and conduct research pertaining to climate change.¹³

39. There has been a substantial body of scientific publications since 1965 regarding the harms caused by elevated atmospheric concentrations of greenhouse gases, including from emissions related to fossil fuel combustion. Answer ¶ 6.

40. In its November 1965 Report, *Restoring the Quality of Our Environment*, President Lyndon Johnson's Science Advisory Committee concluded that increased CO₂ emissions lead to melting of the Antarctic icecap, rising sea levels, warming oceans, and acidifying waters. Answer ¶ 134.

41. In the November 1965 Report, *Restoring the Quality of Our Environment*, President Lyndon Johnson's Science Advisory Committee made the following statement: "Through his worldwide industrial civilization, Man is unwittingly conducting a vast geophysical experiment.

¹³ Report of the International Geophysical Year, Hrg. before the Subcomm of the Comm. on Appropriations 6, 21, 100–01, 104, 108–10 (May 1, 1957) [Doc. 299-130; Bates P00000018200-P00000018328, at P00000026488].

Within a few generations he is burning the fossil fuels that slowly accumulated in the earth over the past 500 million years. The CO₂ produced by this combustion is being injected into the atmosphere; about half of it remains there. The estimated recoverable reserves of fossil fuels are sufficient to produce nearly a 200% increase in the carbon dioxide content of the atmosphere. By the year 2000 the increase in atmospheric CO₂ will be close to 25%. This may be sufficient to produce measurable and perhaps marked, changes in climate, and will almost certainly cause significant changes in the temperature and other properties of the stratosphere.”¹⁴

42. In its December 1965 report, *Weather and Climate Modification, Report of the Special Commission on Weather Modification*, the National Science Foundation made the following statement: “the CO₂ concentration in the atmosphere has increased 10 to 15% in this century, making significant changes in the heat balance.”¹⁵

43. On September 17, 1969, in a memorandum to White House Counsel John Ehrlichman from Daniel Moynihan, Assistant to the President for Domestic Policy during the Nixon Administration, made the following statement: “The process is a simple one. Carbon dioxide in the atmosphere has the effect of a pane of glass in a greenhouse. The CO₂ content is normally in a stable cycle, but recently man has begun to introduce instability through the burning of fossil fuels. At the turn of the century several persons raised the question whether this would change the temperature of the atmosphere. Over the years the hypothesis has been refined, and more evidence has come along to support it. It is now pretty clearly agreed that the CO₂ content will

¹⁴ The White House, *Restoring the Quality of Our Environment: Report of the Environmental Panel, President’s Science Advisory Committee* 126–27 (1965), <http://hdl.handle.net/2027/uiug.30112067733771>. [Doc. 299-190; P00000029976 - P00000029995, at P00000029992].

¹⁵ Doc. 341-149 at P00000054049.

rise 25% by 2000. This could increase the average temperature near the earth's surface by 7 degrees Fahrenheit. This in turn could raise the level of the sea by 10 feet. Goodbye New York. Goodbye Washington, for that matter.”¹⁶

44. In *Carbon Dioxide Affects Global Ecology* published in November, 1969, Eugene K. Peterson, Bureau of Land Management, made the following statement: “[M]an's activities--mainly land clearing, the burning of fossil fuels, and making cement from limestone--are artificially reducing the O₂ content and increasing the CO₂ content of the air. The burning of fossil fuels is primarily responsible, but the other two factors should not be ignored.”¹⁷

45. In *Carbon Dioxide Affects Global Ecology* published in November, 1969, Eugene K. Peterson, Bureau of Land Management, made the following statements: “Ocean levels would rise four feet. There would be major increases in earthquakes and volcanic activity resulting in even more atmospheric CO₂, and violent storms. The Arctic Ocean would be ice free for at least six months each year, causing major shifts in weather patterns in the northern hemisphere. The present tropics would be hotter, more humid, and less habitable, but the present temperature latitude would be warmer and more habitable. The total effect upon the stable earth systems and cycles upon which life depends would be extreme, unprecedented in rapidity.”¹⁸

46. In its *First Annual Report* issued in 1970, the Council on Environmental Quality made the following statement: “Man can change the average atmospheric temperature slightly and thus significantly affect climate in at least seven ways,” including by “increas[ing] the carbon dioxide

¹⁶ The White House, Memorandum from Daniel P. Moynihan to John Ehrlichman (Sept. 17, 1969), <https://www.nixonlibrary.gov/sites/default/files/virtuallibrary/documents/jul10/56.pdf> [MIL #1 Exh. 2; Doc. 299-191; Bates P00000029996- P00000029997, at P00000029996].

¹⁷ Eugene K. Peterson, *Carbon Dioxide Affects Global Ecology*, Environ. Sci. Technol (1969).

¹⁸ Eugene K. Peterson, *Carbon Dioxide Affects Global Ecology*, Environ. Sci. Technol (1969).

content of the atmosphere by burning fossil fuels.”¹⁹

47. In its *First Annual Report* issued in 1970, the Council on Environmental Quality made the following statement: “Recent surprising findings indicate that as increasing fossil fuel consumption raises carbon dioxide output, a lesser percentage of it is retained by the atmosphere, and a larger portion is absorbed by the oceans.”²⁰

48. In its *First Annual Report* issued in 1970, the Council on Environmental Quality stated that, if total estimated available fossil fuel resources were burned, and “one-half of [the resulting] carbon dioxide were added to the atmosphere and there were no compensating effects, then the earth’s average temperature would increase by about 2° to 3°F. Such a rise, if not counteracted by other effects, could in a period of a few decades, lead to the start of substantial melting of ice caps and flooding of coastal regions.”²¹

49. In its 1971 report, *World Weather Program, Plan for Fiscal Year 1971*, the U.S. Department of Commerce made the following statement: “The ever changing global atmosphere has an important influence on most activities of man. At times, the day-to-day changes are critical to his safety; and the weather frequently influences his effectiveness in the pursuit of his livelihood. In the longer term, the quality of the atmosphere may well determine whether man survives or perishes.”²²

50. In 1974, in the first Final Environmental Impact Statement of the Eastern Powder River Coal Basin of Wyoming that the Department of the Interior’s Bureau of Land Management (BLM) prepared under the National Environmental Policy Act (NEPA), the BLM stated that it

¹⁹ Doc. 341-154 at P00000054356.

²⁰ Doc. 341-154 at P00000054357.

²¹ Doc. 341-154 at P00000054358.

²² Doc. 341-153 at P00000054243.

considered “the effects on weather from alteration of the earth atmospheric energy balance.”²³

51. The CEQ’s *Fifth Annual Report of the Council on Environmental Quality*, dated December 1974 made the following statements: “Several important steps were taken during the past year to increase U.S. oil and gas supplies: Federal legislation authorizing construction of the Trans-Alaskan pipeline was enacted, the leasing program for the outer continental shelf was expanded; and administration proposals to authorize construction of deepwater ports and revise regulatory procedures for natural gas sales were under consideration by the Congress” while also noting “CEQ recognized that risk of damage to the humans and natural environment is an inseparable part of almost any development, including the OCS. When the risk is acceptable, the Council stated that we should proceed with caution and with a commitment to prevent or minimize damage.”²⁴

52. In a Letter to Rudolph J. Engelmann, Deputy Manager, Environmental Program, Division of Biomedical and Environmental Research, U.S. Energy Research and Development Administration, dated March 27, 1975, Michael C. MacCracken, Deputy Division Leader, Atmospheric and Geophysical Sciences Division, Lawrence Livermore National Laboratory, made the following statements: “With the increasing pressures for greater domestic energy production, ERDA is proposing and many utility executives are urging that this country’s coal reserves be rapidly developed to serve as the backbone of the United States’ energy resources for at least the next hundred years . . . But at this crucial juncture in energy planning, there seems to

²³ Bureau of Land Mgmt., 2 Final Environmental Impact Statement: Eastern Powder River Coal Basin of Wyoming (1974), https://eplanning.blm.gov/epl-frontoffice/projects/nepa/67005/82492/98469/EPRB_FEIS_Vol2.pdf [MIL #1 Exh. 200; Doc. 299-4; Bates P00000024110- P00000024327, at P00000024269].

²⁴ CEQ, *Fifth Annual Report of the Council on Environmental Quality* 106 (December 1974) (to be filed with Plaintiffs’ Third Motion *in Limine*).

have been no critical assessment similar to the CIAP weighing the relative merits of fossil fuel usage and, for example, nuclear or solar energy generation in which the implications and consequences of continuing reliance on combustion of fossil fuels and the resulting increase in atmospheric carbon dioxide concentrations have been carefully considered. Rather, an implicit assumption has apparently been made that increasing atmospheric carbon dioxide is of no significance; a decision made without assessing the current indications that small changes can cause large effects.”²⁵

53. In a Letter to Rudolph J. Engelmann, Deputy Manager, Environmental Program, Division of Biomedical and Environmental Research, U.S. Energy Research and Development Administration, dated March 27, 1975, Michael C. MacCracken, Deputy Division Leader, Atmospheric and Geophysical Sciences Division, Lawrence Livermore National Laboratory, made the following statements: “While projections for future atmospheric concentrations differ, they are unanimous in seeing a continuing increase in atmospheric carbon dioxide concentrations if emissions continue at reasonably projected rates. These projections for the year 2000 range from 350 ppm upwards to 415 ppm, with a likely value close to 385 ppm.”²⁶

54. In a Letter to Rudolph J. Engelmann, Deputy Manager, Environmental Program, Division of Biomedical and Environmental Research, U.S. Energy Research and Development Administration, dated March 27, 1975, Michael C. MacCracken, Deputy Division Leader,

²⁵ Letter from Michael C. MacCracken, Deputy Division Leader, Atmospheric and Geophysical Sciences Division, Lawrence Livermore National Laboratory to Rudolph J. Engelmann, U.S. Energy Research and Development Administration 7 (Mar. 27, 1975) (to be filed with Plaintiffs’ Third Motion *in Limine*).

²⁶ Letter from Michael C. MacCracken, Deputy Division Leader, Atmospheric and Geophysical Sciences Division, Lawrence Livermore National Laboratory to Rudolph J. Engelmann, U.S. Energy Research and Development Administration 2 (Mar. 27, 1975) (to be filed with Plaintiffs’ Third Motion *in Limine*).

Atmospheric and Geophysical Sciences Division, Lawrence Livermore National Laboratory, made the following statements: “I write this letter to urge that carbon dioxide effects be considered in evaluating energy strategy for the next generation. Research seems in need in climactic effects as well as those biological areas.”²⁷

55. In 1975, the National Academy of Sciences issued a report, *Understanding Climatic Change: A Program for Action*, that made the following statement: “While the natural variations of climate have been larger than those that may have been induced by human activities during the past century, the rapidity with which human impacts threaten to grow in the future, and increasingly to disturb the natural course of events, is a matter of concern. These impacts include man’s changes of the atmospheric composition and his direct interference with factors controlling the all-important heat balance.”²⁸

56. On May 14, 1975, Joseph Smagorinsky, Director of the Department of Commerce NOAA Geophysical Fluid Dynamics Laboratory, made the following statement in a letter to Rudolf Engelmann, Deputy Manager of the Division of Biomedical & Environmental Research at the U.S. Energy Research & Development Administration (ERDA)²⁹: “From our perspective we generally agree that the CO₂ increase is an important problem which deserves deliberate and

²⁷ Letter from Michael C. MacCracken, Deputy Division Leader, Atmospheric and Geophysical Sciences Division, Lawrence Livermore National Laboratory to Rudolf J. Engelmann, U.S. Energy Research and Development Administration 2 (Mar. 27, 1975) (to be filed with Plaintiffs’ Third Motion *in Limine*).

²⁸ Nat’l Academy of Sciences, *Understanding Climatic Change: A Program for Action* 43 (1975), <https://archive.org/details/understandingcli00unit> [Doc. 299-192; Bates P00000039145-P00000039414, at P00000039211].

²⁹ In 1977, the Energy Research and Development Administration (ERDA) became part of the newly created Department of Energy. Nat’l Research Council, *Energy Research at DOE: Was It Worth It? Energy Efficiency and Fossil Energy Research 1978 to 2000*, at 55 (2001), <https://www.nap.edu/catalog/10165/energy-research-at-doe-was-it-worth-it-energy-efficiency>. [Doc. 270-56; Bates P00000011806–P00000012046, at P00000011823].

well coordinated national attention.”³⁰

57. In the March 1977 Department of Energy report *Carbon Dioxide Effects Research and Assessment Program, Workshop on the Global Effects of Carbon Dioxide From Fossil Fuels*, President Carter’s DOE made the following statement: “The growing concern about the long-range consequences of carbon dioxide emissions resulting from ever-increasing fossil fuel combustion prompted the Division of Biomedical and Environmental Research of the Energy Research and Development Administration (ERDA) to undertake a thorough examination of the carbon dioxide problem.” For the workshop, “[s]ome 75 scientists were assembled to discuss the current knowledge of the CO₂ cycle and the consequences of increases in CO₂ content. They were also asked to identify significant gaps in our understanding and to recommend actions to fill those gaps.”³¹

58. On July 7, 1977, in a memorandum to President Jimmy Carter, Director of the Office of Science and Technology Policy Frank Press made the following statement: “Fossil fuel combustion has increased at an exponential rate over the last 100 years. As a result, the atmospheric concentration of CO₂ is now 12 percent above the pre-industrial revolution level and may grow to 1.5 to 2.0 times that level within 60 years. Because of the ‘greenhouse effect’ of atmospheric CO₂, the increased concentration will induce a global climatic warming of anywhere from 0.5° to 5°C. . . . A rapid climatic change may result in large scale crop failures at a time when an increased world population taxes agriculture to the limits of productivity. The urgency of the problem derives from our inability to shift rapidly to non-fossil fuel sources once the

³⁰ Letter from Joseph Smagorinsky, Director, NOAA Geophysical Fluid Dynamics Laboratory to Rudolf Engelmann, Deputy Manager, Div. of Biomedical & Envtl. Research, U.S. Energy Research & Devel. Admin. (May 14, 1975). [Doc. 299-174; Bates P00000018002].

³¹ Doc. 341-156 at P00000054777.

climatic effects become evident not long after the year 2000; the situation could grow out of control before alternate energy sources and other remedial actions become effective. . . . [W]e should emphasize targeted basic research which could lead to breakthroughs for solar electric, biomass conversion or other renewable energy sources.”³²

59. In a memorandum to President Carter dated October 19, 1977 regarding the National Energy Plan, Jim Schlesinger and Stu Eizenstat wrote that one of the goals of the National Energy Plan was: “To increase our coal production by more than two-thirds, over 1 billion tons a year.”³³

60. In December 1977, the Council on Environmental Quality (CEQ) issued its Eighth Annual Report to President Carter and Congress that contained the following statement: “If we use up the world’s stores of fossil fuels at a rapid rate, the predicted CO₂ level will double by 2025 and reach a maximum of seven to eight times today’s level by the year 2100. A doubling of the CO₂ level could cause a 2–3°C increase in average atmospheric temperatures.”³⁴

61. In December 1977, the CEQ issued its Eighth Annual Report to President Carter and Congress that contained the following statement: “A possible 2–3°C average temperature increase must be looked upon as a major global environmental threat—global temperatures over the past several thousand years have never fluctuated by more than about 1°C [] —but the

³² Executive Office of the President, Memorandum from Frank Press to the President, Release of Fossil CO₂ and the Possibility of Catastrophic Climate Change (July 7, 1977). [Doc. 299-193; Bates P00000030009- P00000030010, at P00000030010].

³³ Memorandum for the President; Briefing Material on National Energy Plan 7 (Oct. 19, 1977) (retrieved from Jimmy Carter Presidential Library) (to be filed with Plaintiffs’ Third Motion *in Limine*).

³⁴ Executive Office of the President, Council on Environmental Quality, Environmental Quality: The Eighth Annual Report of the Council on Environmental Quality 190 (1977), <https://www.slideshare.net/whitehouse/august-1977-the-eighth-annual-report-of-the-council-on-environmental-quality> [Doc. 299-195; Bates P00000030011- P00000030486, at P00000030232].

consequences are highly speculative.”³⁵

62. In 1977, the National Research Council, the operating agency of the National Academies of Sciences, Engineering, and Medicine, issued a report, *Energy and Climate: Studies in Geophysics*, that made the following statements: “Our best understanding of the relation between an increase in carbon dioxide in the atmosphere and change in global temperature suggests a corresponding increase in average world temperature of more than 6°C, with polar temperature increases of as much as three times this figure. This would exceed by far the temperature fluctuations of the past several thousand years and would very likely, along the way, have a highly significant impact on global precipitation.”³⁶

63. In September 1977, Elmer B. Staats, Comptroller General of the United States, issued a report to Congress, *U.S. Coal Development—Promises, Uncertainties*, that made the following statement: “Whenever fossil fuels are burned, carbon dioxide is emitted. While some carbon dioxide is absorbed by plant life and the oceans, much of it accumulates in the upper atmosphere. These carbon dioxide concentrations intercept heat radiation from the earth, trapping heat within the atmosphere causing what has been termed as a ‘greenhouse effect’”³⁷

64. In September 1977, Elmer B. Staats, Comptroller General of the United States, issued a report to Congress, *U.S. Coal Development—Promises, Uncertainties*, that made the following statement: “[A] global warming of 1 degree to 2 degrees centigrade could cause serious

³⁵ Executive Office of the President, Council on Environmental Quality, *Environmental Quality: The Eighth Annual Report of the Council on Environmental Quality* 190 (1977), <https://www.slideshare.net/whitehouse/august-1977-the-eighth-annual-report-of-the-council-on-environmental-quality> [Doc. 299-195; Bates P00000030011- P00000030486, at P00000030232].

³⁶ Nat’l Research Council, *Energy and Climate: Studies in Geophysics*, at viii (1977). [MIL #1 Exh. 13; Doc. 299-202; Bates P00000039415- P00000039589].

³⁷ Doc. 341-157 at P00000055147.

repercussions on the earth's surface including shifting of wind circulation belts and redistributing temperature patterns and precipitation levels. Numerous secondary effects associated with these primary effects will also occur”³⁸

65. In September 1977, Elmer B. Staats, Comptroller General of the United States, issued a report to Congress, *U.S. Coal Development—Promises, Uncertainties*, that made the following statement: “[T]he increased global temperature caused by rising concentrations of carbon dioxide may produce some melting of the polar ice caps, causing a sea level increase of tens of feet, gradually inundating coastal plains and lowlands, and perturbation of marine biology. With continued growth in the use of fossil fuels, the effect of increased coal combustion on climatic conditions may become an important problem during the next 50 years.”³⁹

66. A September 1977 report from the General Accounting Office (now General Accountability Office), contains the following statement: “a global warming of 1 degree to 2 degrees centigrade could cause serious repercussions on the earth's surface including shifting of wind circulation belts and redistributing temperature patterns and precipitation levels.”⁴⁰

67. A September 1977 report from the General Accounting Office (now General Accountability Office), contains the following statement: “With continued growth in the use of fossil fuels, the effect of increased coal combustion on climatic conditions may become an important problem during the next 50 years.”⁴¹

³⁸ Doc. 341-157 at P00000055147.

³⁹ Doc. 341-157 at P00000055147.

⁴⁰ Elmer B. Staats, Controller General, Report to Congress, *U.S. Coal Development – Promise, Uncertainties*. EMD-77-43, 1, 6.19 (Sept. 22, 1977) [MIL #2 Exh. 157; Doc. 341-157; Bates P00000054901-P00000055354, at P00000054903, P00000055147, P00000054908-P00000054919]

⁴¹ Elmer B. Staats, Controller General, Report to Congress, *U.S. Coal Development – Promise, Uncertainties*. EMD-77-43, 1, 6.19 (Sept. 22, 1977) [MIL #2 Exh. 157; Doc. 341-157; Bates

68. In its 1978 report *Environmental Quality: The Ninth Annual Report of the Council on Environmental Quality*, the Council on Environmental Quality made the following statements: “Global effects of carbon dioxide in the atmosphere – Combustion of fossil fuels, and especially coal, is increasing global atmospheric CO₂. This could induce climatic changes with potential for generating global sociopolitical disruption after 2025. It is urgent that we continue a strong research program to provide a sound basis for action no later than 1985. Because this problem is global in character, the United States should initiate a continuing international dialogue immediately.”⁴²

69. In its 1979 report *Environmental Quality: The Tenth Annual Report of the Council on Environmental Quality*, the Council on Environmental Quality made the following statements: “Conceivably, scientific proof of the warming of the earth might come after the time has passed when action could be taken to reverse the trend. ‘If we wait until there is absolute proof that the increase in CO₂ is causing a warming of the earth,’ says Dr. George Woodwell of Woods Hole Marine Biological Laboratory, ‘it will be 20 years too late to do anything about it.’”⁴³

70. The Department of Energy’s April 1979 report, *The Long Term Impact of Atmospheric Carbon Dioxide on Climate*, estimated that CO₂ would be doubled between 2035 and 2060, depending on the rate of increase in use of carbon fuels ranging from 1% to 4.3%.⁴⁴

71. The Department of Energy’s April 1979 report, *The Long Term Impact of Atmospheric Carbon Dioxide on Climate*, made the following statement: “If civilization continues its heavy

P00000054901-P00000055354, at P00000054903, P00000055147, P00000054908-P00000054919]

⁴² Doc. 341-158 at P00000055957.

⁴³ Doc. 341-159 at P00000057128.

⁴⁴ Doc. 341-161 at P00000057347.

reliance on carbon based fuels, and if there are no major shifts in the current response of the oceans and biosphere to changing carbon dioxide content, then we should expect during the middle of the 21st Century a warming of 2 to 3°C accentuated by a factor of three or four at high polar regions.”⁴⁵

72. In 1979, the National Academy of Sciences’ Ad Hoc Study Group on Carbon Dioxide and Climate issued a report, *Carbon Dioxide and Climate: A Scientific Assessment* (“Charney Report”), that made the following statements: “We believe, therefore, that the equilibrium surface global warming due to doubled CO₂ will be in the range 1.5° C to 4.5° C, with the most probable value near 3°C” that “will be accompanied by significant changes in regional climatic patterns.”⁴⁶

73. In 1979, the National Academy of Sciences’ Ad Hoc Study Group on Carbon Dioxide and Climate issued a report, *Carbon Dioxide and Climate: A Scientific Assessment* (“Charney Report”), that made the following statements: “The conclusions of this brief but intense investigation may be comforting to scientists but disturbing to policymakers. If carbon dioxide continues to increase, the study group finds no reason to doubt that climate changes will result and no reason to believe that these changes will be negligible. The conclusions of prior studies have been generally reaffirmed. However, the study group points out that the ocean, the great and ponderous flywheel of the global climate system, may be expected to slow the course of

⁴⁵ Doc. 341-161 at P00000057352.

⁴⁶ Jule G. Charney et al., Nat’l Academy of Sciences, *Carbon Dioxide and Climate: A Scientific Assessment*, Report of an Ad Hoc Study Group on Carbon Dioxide and Climate 16–17 (1979). [Doc. 299-194; Bates P00000030548- P00000030565, at P00000030562].

observable climate change. A wait-and-see policy may mean waiting until it is too late.”⁴⁷

74. In the 1980 report *The Global 2000 Report to the President: Entering the Twenty-First Century*, the Council on Environmental Quality and the U.S. Department of State made the following statements: “Prompt and vigorous changes in public policy around the world are needed to avoid or minimize these problems before they become unmanageable. Long lead times are required for effective action. If decisions are delayed until the problems become worse, options for effective action will be severely reduced.”⁴⁸

75. In its 1980 *Summary of the Carbon Dioxide Effects Research and Assessment Program*, the Department of Energy made the following statements: “It is the sense of the scientific community that carbon dioxide from the unrestrained combustion of fossil fuels is potentially the most important environmental issue facing mankind. Current predictions call for a doubling of atmospheric carbon dioxide as early as the middle of the next century. Climate models, using these elevated levels, predict the possibility of significant dislocations in the global distribution of climate. Should such perturbations in the distribution of global temperature, cloudiness, precipitation, and wind occur, then it is clear that there could be major changes in the global distribution of agriculture, in the extent and composition of ecological systems, in the biological and physical characteristics of the oceans, and in the extent of the cryosphere. The costs or benefits of such extensive environmental changes to a balanced international societal system are difficult to estimate but could be historically unprecedented.”⁴⁹

⁴⁷ Jule G. Charney et al., Nat’l Academy of Sciences, *Carbon Dioxide and Climate: A Scientific Assessment*, Report of an Ad Hoc Study Group on Carbon Dioxide and Climate viii (1979). [Doc. 299-194; Bates P00000030548- P00000030565, at P00000030552].

⁴⁸ Doc. 341-165 at P00000057548.

⁴⁹ Doc. 341-167 at P00000057614.

76. In December 1980, the CEQ issued its Eleventh Annual Report to President Carter and Congress that made the following statements: “There is a growing realization that the earth’s atmosphere could be permanently and disastrously altered by human actions. The burning of fossil fuels and perhaps the cutting of forests without compensatory replanting are causing a steady, measurable buildup of carbon dioxide in the atmosphere that threatens widespread climate change.”⁵⁰

77. In December 1980, the CEQ issued its Eleventh Annual Report to President Carter and Congress that made the following statements: “Possible climatic effects include changes in wind direction and speed, in ocean currents, and in precipitation patterns. If these large-scale climatic changes occurred, the socioeconomic impacts would be significant. If the warming continued long enough, polar ice could melt and sea levels would rise, forcing a gradual evacuation of heavily populated coastal areas. Agricultural patterns would change as well. In some regions existing agricultural infrastructure could become obsolete.”⁵¹

78. In January 1981, the CEQ issued a report, *Global Energy Futures and the Carbon Dioxide Problem*, that made the following statements: “The CO₂ problem should be taken seriously in new ways: it should become a factor in making energy policy and not simply be the subject of scientific investigation. Every effort should be made to ensure that nations are not

⁵⁰ Council on Env’tl Quality, Environmental Quality: The Eleventh Annual Report of the Council on Environmental Quality 12, 265–66 (1980), <https://www.slideshare.net/whitehouse/august-1980-the-eleventh-annual-report-of-the-council-on-envy>. [Doc. 299-196; Bates P00000030566- P00000031149, at P00000030610, P00000030861-62].

⁵¹ Council on Env’tl Quality, Environmental Quality: The Eleventh Annual Report of the Council on Environmental Quality 12, 265–66 (1980), <https://www.slideshare.net/whitehouse/august-1980-the-eleventh-annual-report-of-the-council-on-envy>. [Doc. 299-196; Bates P00000030566- P00000031149, at P00000030610, P00000030861-62].

compelled to choose between the risks of energy shortages and the risks of CO₂. This goal requires making a priority commitment here and abroad to energy efficiency and to renewable energy resources; it also requires avoiding a commitment to fossil fuels that would preclude holding CO₂ to tolerable levels.”⁵²

79. In 1981, the Council on Environmental Quality and the Department of State published a report *Global Future, Time to Act* that made the following statements: “[t]he United States should ensure that full consideration of the CO₂ problem is given in the development of energy policy. Efforts should begin immediately to develop and examine alternative global energy futures, with special emphasis on regional analyses and the implications for CO₂ buildup. The analyses should examine the environmental, economic, and social implications of alternative energy futures that involve varying reliance on fossil fuels, and they should examine alternative mechanisms and approaches, international and domestic, for controlling CO₂ buildup. Special attention should also be devoted to determining what would be a prudent upper bound on global CO₂ concentrations.”⁵³

80. On April 15, 1982, Paul C. Cahill, Director of EPA’s Office of Federal Activities sent a letter to Alan Hill, Chairman of the Global Issues Work Group of the CEQ that included a draft of the U.S. Government Statement on Global Environmental Principles, which contained the following statements: “Environmental policy should be based on the interests of present and future generations of human beings. A healthy environment is fundamental to the economic and

⁵² Council on Env’tl Quality, *Global Energy Futures and the Carbon Dioxide Problem*, at vi (1981), <http://hdl.handle.net/2027/umn.31951d003573546> [Doc. 299-199; Bates P00000031150-P00000031258, at P00000031158].

⁵³ Council on Environmental Quality and Department of State, *Global Future: Time To Act*, Government Printing Office, 138 (Jan. 1981) [MIL #2 Exh. 168; Doc. 341-168; Bates P00000058230-P00000058490, at P00000058419].

social well-being of mankind.”⁵⁴

81. In its 1982 Annual Report to Congress and the President, the CEQ made the following statement: “increased atmospheric CO₂ may be causing a warming trend that could increase mean global temperature between 2.5 and 4.5 degrees Celsius by the end of the 21st century.”⁵⁵

82. In the 1982 report *Carbon Dioxide and Climate: A Second Assessment*, the National Research Council made the following statement: “For over a century, concern has been expressed that increases in atmospheric carbon dioxide (CO₂) concentration could affect global climate by changing the heat balance of the atmosphere and Earth. Observations reveal steadily increasing concentrations of CO₂, and experiments with numerical climate models indicate that continued increase would eventually produce significant climatic change.”⁵⁶

83. In the 1982 report *Carbon Dioxide and Climate: A Second Assessment*, the National Research Council made the following statements: “despite the admitted existence of numerous uncertainties, the consensus on the nature and magnitude of the problem has remained remarkably constant throughout this long worldwide process of study and deliberation. Burning of fossil fuels releases to the atmosphere carbon that was extracted by ancient plants many millions of years ago. The most recent projections of future energy consumption suggest a slackening in the growth in energy consumption; nevertheless, even the most conservative estimates imply major CO₂ injections. The details of the natural carbon cycle and the future disposition of injected CO₂ are still unclear, but it seems certain that much man-made CO₂ will

⁵⁴ Letter from Paul C. Cahill, Director of EPA’s Office of Federal Activities sent a letter to Al Alan Hill, Chairman of the Global Issues Work Group of the Council on Environmental Quality (April 15, 1982). [MIL #1 Exh. 343; Doc. 299-147; Bates P00000025015- P00000025021, at P00000025017].

⁵⁵ Doc. 341-170 at P0000058731.

⁵⁶ Doc. 341-171 at P00000058851.

remain in the atmosphere. Although questions have been raised about the magnitude of climatic effects, no one denies that changes in atmospheric CO₂ concentration have the potential to influence the heat balance of the Earth and atmosphere. Finally, although possibly beneficial effects on biological photosynthetic productivity have been recognized, no one denies that an altered climate would to some extent influence how humanity secures its continuing welfare.”⁵⁷

84. In a hearing on March 25, 1982 before the House Subcommittee on Natural Resources, Agricultural Resources and Environment and the Subcommittee on Investigations and Oversight of the Committee on Science and Technology entitled *Carbon Dioxide and Climate: The Greenhouse Effect*, Dr. James Hansen, Director of the NASA Goddard Institute for Space Studies, made the following statements to Congress: “I would like to note that a smaller but still significant sea level rise is likely to occur in the coming decades even without collapse of the West Antarctic ice sheet. Just the thermal expansion of ocean water and the slow ice sheet melting, that we have evidence to be occurring, will probably raise sea level between 1 and 2 feet in the next 70 years, if the climate sensitivity is approximately of the magnitude estimated by the National Academy of Sciences committee chaired by Charney. A sea level rise of 1 to 2 feet is sufficient to cause large-scale beach erosion, intrusion of salt water into low-lying freshwater regions, and a large increase of damaging storm surges in coastal areas.”⁵⁸

85. In a hearing on March 25, 1982 before the House Subcommittee on Natural Resources, Agricultural Resources and Environment and the Subcommittee on Investigations and Oversight of the Committee on Science and Technology entitled *Carbon Dioxide and Climate: The Greenhouse Effect*, Dr. Melvin Calvin, Professor of Chemistry, Lawrence Berkeley Laboratory,

⁵⁷ Doc. 341-171 at P00000058864.

⁵⁸ Doc. 341-173 at P00000059040.

University of California at Berkeley, advised Congress: “[I]f we go on with a 50-terawatt fossil fuel strategy, the carbon dioxide emissions and the temperature changes are very large indeed. They go up to 4 or 5 degrees. A 4 or 5 degree rise in the global temperature means an enormous change in the agricultural pattern of the Earth, and if that happens within two generations of the human race, I do not think the human race can adjust to it that fast; it is bad enough to adjust to it in several hundred years, to that big a change in agricultural patterns over the surface of the Earth. To do it in one or two generations, I think, is asking too much of mankind.”⁵⁹

86. In September 1983, the Environmental Protection Agency (EPA) issued the report *Can We Delay A Greenhouse Warming?*, that stated that it was addressing “whether specific policies aimed at limiting the use of fossil fuels would prove effective in delaying temperature increases over the next 120 years.”⁶⁰

87. In its September 1983 report, *Can We Delay A Greenhouse Warming?*, the EPA made the following statements: “Evidence continues to accumulate that increases in atmospheric carbon dioxide (CO₂) and other ‘greenhouse’ gases will substantially raise global temperature. While considerable uncertainty exists concerning the rate and ultimate magnitude of such a temperature rise, current estimates suggest that a 2° C (3.6° F) increase could occur by the middle of the next century, and a 5° C (9° F) increase by 2100. Such increases in the span of only a few decades represent an unprecedented rate of atmospheric warming.”⁶¹

88. In its September 1983 report, *Can We Delay A Greenhouse Warming?*, the EPA made the

⁵⁹ Doc. 341-173 at P00000059013.

⁶⁰ U.S. EPA, *Can We Delay A Greenhouse Warming?* ii (1983). [Doc. 299-146; Bates P00000007230- P00000007437, at P00000007242].

⁶¹ U.S. EPA, *Can We Delay A Greenhouse Warming?* ii (1983). [Doc. 299-146; Bates P00000007230- P00000007437, at P00000007241].

following statements: “Temperature increases are likely to be accompanied by dramatic changes in precipitation and storm patterns and a rise in global average sea level. As a result, agricultural conditions will be significantly altered, environmental and economic systems potentially disrupted, and political institutions stressed.”⁶²

89. In its September 1983 report, *Can We Delay A Greenhouse Warming?*, the EPA made the following statements: “A warmer climate could dramatically change existing ecosystems, affect the habitability of many areas of the world, and alter the relationship between developed and developing nations. Adverse impacts will result primarily from increases in temperature, changes in precipitation, changes in storm patterns, and increases in sea level.”⁶³

90. In its September 1983 report *Can We Delay A Greenhouse Warming?*, the EPA made the following statements: “[A] growing body of experts is calling for action now. For example, in its 1979 report, the National Academy of Sciences warned against further delay in responding to the CO₂ problem – ‘A wait and see attitude may mean waiting until it’s too late’ (Charney, 1979).

Along similar lines, a report by the President’s Council on Environmental Quality concluded: ‘If a global response to the CO₂ problem is postponed for a significant time, there may not be time to avoid substantial economic, social, and environmental disruptions once a CO₂-induced warming trend is detected’ (CEQ, 1981). Calls for an immediate response have also been voiced at Congressional hearings, in newspaper editorials, and in news magazines across the nation. Such calls for action are not surprising, given the magnitude of the potential climatic changes that might accompany further increases in atmospheric CO₂. In the minds of many, concern

⁶² U.S. EPA, *Can We Delay A Greenhouse Warming?* i (1983). [Doc. 299-146; Bates P00000007230- P00000007437, at P00000007241].

⁶³ U.S. EPA, *Can We Delay A Greenhouse Warming?* i (1983). [Doc. 299-146; Bates P00000007230- P00000007437, at P00000007241].

about these changes far outweighs remaining uncertainties surrounding their exact nature and timing.”⁶⁴

91. In its September 1983 report *Can We Delay A Greenhouse Warming?*, the EPA made the following statements: “[O]ur findings call for an expeditious response. A 2°C increase in temperature by (or perhaps well before) the middle of the next century leaves us only a few decades to plan for and cope with a change in habitability in many geographic regions. Changes by the end of the 21st century could be catastrophic taken in the context of today’s world. A soberness and sense of urgency should underlie our response to a greenhouse warming.”⁶⁵

92. The October 1983 EPA report *Projecting Future Sea Level Rise: Methodology, Estimates to the Year 2100 & Research Needs* made the following statement: “Global sea level will almost certainly rise in coming decades. A global rise of between 144 cm (4.8 feet) and 217 cm (7 feet) by 2100 is most likely. A global rise as low as 56 cm (1.9 feet) or as high as 345 cm (11 feet) by 2100 cannot be ruled out.”⁶⁶

93. The October 1983 EPA report *Projecting Future Sea Level Rise: Methodology, Estimates to the Year 2100 & Research Needs* reported: “Future energy use and fuel selection will thus be the primary determinants of the rate of CO₂ emissions.”⁶⁷

94. *Changing Climate: Report of the Carbon Dioxide Assessment Committee*, prepared at the

⁶⁴ U.S. EPA, *Can We Delay A Greenhouse Warming?* 1-11 (1983). [MIL #1 Exh. 342; Doc. 299-146; Bates P00000007230- P00000007437, at P00000007260].

⁶⁵ U.S. EPA, *Can We Delay A Greenhouse Warming?* 7-7 (1983). [MIL #1 Exh. 342; Doc. 299-146; Bates P00000007230- P00000007437, at P00000007401] .

⁶⁶ U.S. EPA, *Projecting Future Sea Level Rise: Methodology, Estimates to the Year 2100 & Research Needs* (1983). [Doc. 299-135/299-151; Bates P00000025022- P00000025149, at P00000025027].

⁶⁷ U.S. EPA, *Projecting Future Sea Level Rise: Methodology, Estimates to the Year 2100 & Research Needs* (1983). [MIL #1 Exh. 331/347; Doc. 299-135/299-151; Bates P00000025022- P00000025149, at P00000025036].

request of Congress by the Carbon Dioxide Assessment Committee; Board on Atmospheric Sciences and Climate; Commission on Physical Sciences, Mathematics, and Resources; National Research Council and released in 1983 made the following statement: “While adverse consequences of 100 years from now are obviously less pressing than those of next year, if they are also of large magnitude and irreversible, we cannot in good conscience discount them.”⁶⁸

95. *Changing Climate: Report of the Carbon Dioxide Assessment Committee*, prepared at the request of Congress by the Carbon Dioxide Assessment Committee; Board on Atmospheric Sciences and Climate; Commission on Physical Sciences, Mathematics, and Resources; National Research Council and released in 1983 made the following statement: “A collapse of the West Antarctic Ice Sheet would release about 2 million km of ice before the remaining half of the ice sheet began to float (Bentley, 1983). The resulting worldwide rise in sea level would be between 5 and 6 m. The oceans would flood all existing port facilities and other low-lying coastal structures, extensive sections of the heavily farmed and densely populated river deltas of the world, major portions of the state of Florida and Louisiana, and large areas of many of the world's major cities.”⁶⁹

96. During his remarks on June 21, 1984 at the Organization for Economic Cooperation and Development, EPA Administrator William D. Ruckelshaus made the following statements: “In order to cope with these problems we are going to have to take a longer view than most governments are comfortable with taking. With these kinds of problems it takes a long time to

⁶⁸ Nat'l Academy of Science, *Changing Climate: Report of the Carbon Dioxide Assessment Committee* 51 (1983), <https://www.nap.edu/catalog/18714/changing-climate-report-of-the-carbon-dioxide-assessment-committee> (to be filed with Plaintiffs' Third Motion *in Limine*).

⁶⁹ Nat'l Academy of Science, *Changing Climate: Report of the Carbon Dioxide Assessment Committee* 441–42 (1983), <https://www.nap.edu/catalog/18714/changing-climate-report-of-the-carbon-dioxide-assessment-committee> (to be filed with Plaintiffs' Third Motion *in Limine*).

figure out what to do and an even longer time to do it. The alternative to making such long-term commitments is a succession of unexpected and shattering crises.”⁷⁰

97. During his remarks on June 21, 1984 at the Organization for Economic Cooperation and Development, EPA Administrator William D. Ruckelshaus made the following statements:

“There are some cherished values that resists being quantified or squeezed into monetary terms, but are no less real for that. Agents of democratic societies are responsible to the people, but we should remember that the people refers not only to the working majority that actually makes current decisions, and not even to the whole of the living population, but to those who came before us who provided our traditions and our physical patrimony as nations, and to those who will come after us, and who will inherit what we leave behind. Decisions in the environmental arena often touch on this broader sense of public responsibility, and we cannot afford to lose it among the numbers.”⁷¹

98. In February 1985, the Department of Energy’s Carbon Dioxide Research Program made the following statement in its report *Projecting the Climatic Effects of Increasing Carbon Dioxide*: “The current working consensus is that global climate will warm 1.5-4.5 degrees C if CO₂ concentrations are doubled.”⁷²

99. In December 1985, the Department of Energy issued a report, *Atmospheric Carbon Dioxide and the Global Carbon Cycle* that made the following statement: “[h]uman effects on atmospheric composition and the size and operations of the terrestrial ecosystems represent major excursions that may yet overwhelm the life-support system crafted in nature of billions of

⁷⁰ Doc. 341-175 at P00000059201.

⁷¹ Doc. 341-175 at P00000059199.

⁷² U.S. Dep’t of Energy, Carbon Dioxide Research Div., *Projecting the Climatic Effects of Increasing Carbon Dioxide* xx (1985). [Doc. 270-43; Bates P00000010100- P00000010511].

years.”⁷³

100. In its December 1985 report, *Projecting the Climatic Effects of Increasing Carbon Dioxide*, the Department of Energy made the following statements: “There is little doubt that the increasing concentration of atmospheric carbon dioxide (CO₂) has the potential to modify the Earth’s climate. Increased global surface temperatures, altered precipitation patterns, and changes in other climatic variables could have substantial economic and social consequences.”⁷⁴

101. In its December 1985 report, *Projecting the Climatic Effects of Increasing Carbon Dioxide*, the Department of Energy made the following statements: “Virtually all studies suggest that the increasing CO₂ concentration will significantly increase the global average temperature.”⁷⁵

102. On September 12, 1986, members of the Senate Environment and Public Works Committee sent a formal request to the EPA Administrator asking the agency to undertake a study on the “health and environmental effects of climate change” and a study on “an examination of the policy options that, if implemented, would stabilize current levels of atmospheric greenhouse gas emissions.”⁷⁶

103. In a letter sent to President Reagan on May 21, 1986, Senator Al Gore made the following statements: “One of the most serious long-term environmental problems facing the

⁷³ Dep’t of Energy, DOE/ER-0239, *Atmospheric Carbon Dioxide and the Global Carbon Cycle* 300 (1985), <https://www.osti.gov/servlets/purl/6048470> [Doc. 299-205; Bates P00000032576-P00000032916, at P00000032900].

⁷⁴ Dep’t of Energy, *Projecting the Climatic Effects of Increasing Carbon Dioxide*, at ix (1985). [Doc. 299-203; Bates P00000032164- P00000032575, at P00000032176].

⁷⁵ Dep’t of Energy, *Projecting the Climatic Effects of Increasing Carbon Dioxide*, at ix (1985). [Doc. 299-203; Bates P00000032164- P00000032575, at P00000032176].

⁷⁶ U.S. EPA, EPA-230-05-89-050, *The Potential Effects of Global Climate Change on the United States Draft Report to Congress* 1 (Oct. 1988). [Doc. 299-136/299-152; Bates P00000007438-P00000007908, at P00000007464]; *see also* Doc. 341-179 at P00000059785.

United States and the world is the greenhouse effect. This global warming, which is the result of the accumulation of carbon dioxide and trace gases in the atmosphere, could have disastrous consequences ranging from alteration of weather patterns to a rise in sea levels.”⁷⁷

In 1987, Robert E. Johnson through Ralph C. Bledsoe, Executive Secretary of the Domestic Policy Council, wrote a memorandum to Nancy J. Risque, Assistant to the President and Cabinet Secretary, made the following statement about the Reagan White House Office of Science Technology Policy (OSTP): OSTP “strongly opposed the Global Protection Act and consideration of policy actions on global climate change, arguing that the science is not understood well enough to formulate meaningful policies. Although the statute requires policy consideration of this issue, DPC action now could be premature before the science ‘is ready.’”⁷⁸

104. In a memorandum to Ralph Bledsoe of the White House Domestic Policy Council sent on January 15, 1988, Richard J. Smith, Acting Assistant Secretary for the Department of State’s Bureau of Oceans and International Environmental and Scientific Affairs, made the following statements: “As scientific research on global climate change has advanced over the past decade, global warming has become an issue in national and international fora. Significant uncertainties remain about the magnitude, timing and regional impacts of climate change. Still, global warming at an unprecedented rate in the coming decades appears likely, as a result of human activities (e.g., emission of CO₂, NO_x, CFCs, and deforestation). Global warming within a century could be greater than that experienced over the past 10,000 years. The resulting changes will surely have broad implications for U.S. domestic and international policies.”⁷⁹

⁷⁷ Doc. 341-177 at P00000059580.

⁷⁸ Memorandum through Ralph C. Bledsoe for Nancy J. Risque, The Global Climate Protection Act (Dec. 29, 1987) [MIL #2 Exh. 182; Doc. 341-182; Bates P00000059868].

⁷⁹ Doc. 341-183 at P00000059869.

105. In a letter to Richard Hallgren, U.S. Permanent Representative to the World Meteorological Organization dated January 27, 1988, Richard J. Smith, Acting Assistant Secretary for the Department of State's Bureau of Oceans and International Environmental and Scientific Affairs, made the following statements: "I believe it is important that we take an active role in shaping [the International Panel on Climate Change] to meet U.S. Government objectives. The panel should not undertake scientific work itself; sufficient mechanisms exist within [the World Meteorological Organization] and elsewhere, which should be used, not duplicated. At the same time, we believe calls for negotiation of an international legal instrument to address the issue are premature."⁸⁰

106. On June 23, 1988, J. Bennett Johnston, U.S. Senator from Louisiana, Chairman of the Senate Committee on Energy and Natural Resources, in his opening statement to a Hearing Before the Committee on Energy and Natural Resources on the Greenhouse Effect and Global Climate Change, made the following statements: "We have only one planet. If we screw it up, we have no place else to go. The possibility, indeed, the fact of our mistreating this planet by burning too much fossil fuels and putting too much CO₂ in the atmosphere and thereby causing this greenhouse effect is now a major concern of the Members of the Congress and of people everywhere in this country."⁸¹

107. On June 23, 1988, J. Bennett Johnston, U.S. Senator from Louisiana, Chairman of the Senate Committee on Energy and Natural Resources, in his opening statement to a Hearing

⁸⁰ Doc. 341-184 at P00000059889.

⁸¹ Hon. J. Bennett Johnston, Chairman, U.S. Senate Committee on Energy and Natural Resources, Hearing Before the U.S. Senate Committee on Energy and Natural Resources: Part 2, S. Hrg. 100-461, at 1 (June 23, 1988) [MIL #1 Exh. 17; Doc. 299-206; Bates P00000036792-P00000037010, at P00000036796].

Before the Committee on Energy and Natural Resources on the Greenhouse Effect and Global Climate Change, made the following statements: “The greenhouse effect has ripened beyond theory now. We know it is fact. What we don’t know is how quickly it will come upon us as an emergency fact, how quickly it will ripen from just simply a matter of deep concern to a matter of severe emergency.”⁸²

108. On June 23, 1988, Dr. James Hansen, then-Director of NASA Goddard Institute for Space Studies, made the following statements in testimony to the Senate Committee on Energy and Natural Resources: “Number one, the earth is warmer in 1988 than at any time in the history of instrumental measurements. Number two, the global warming is now large enough that we can ascribe with a high degree of confidence a cause and effect relationship to the greenhouse effect. And number three, our computer climate simulations indicate that the greenhouse effect is already large enough to begin to effect the probability of extreme events such as summer heat waves.”⁸³

109. On September 22, 1988, Donna R. Fitzpatrick, Undersecretary of the Department of Energy, made the following statement before the House of Representatives Committee on Energy and Commerce, Subcommittee on Energy and Power: “The greenhouse effect has been the subject of research attention at the Department of Energy for the last 10 years.”⁸⁴

⁸² Hon. J. Bennett Johnston, Chairman, U.S. Senate Committee on Energy and Natural Resources, Hearing Before the U.S. Senate Committee on Energy and Natural Resources: Part 2, S. Hrg. 100-461 pt. 2, at 2 (June 23, 1988) [MIL #1 Exh. 17; Doc. 299-206; Bates P00000036792- P00000037010, at P00000036797].

⁸³ Dr. James Hansen, Director, NASA Goddard Institute for Space Studies, Hearing Before the U.S. Senate Committee on Energy and Natural Resources: Part 2, S. Hrg. 100-461, at 39 (June 23, 1988) [Doc. 299-206; Bates P00000036792- P00000037010, at P00000036834].

⁸⁴ Statement of Donna R. Fitzpatrick, Hearing on the Energy Policy Implications of Global Warming, U.S. House of Representatives Committee on Energy & Commerce, Subcommittee on

110. On December 1, 1988, in a hearing before the Senate Committee on Agriculture, Nutrition, and Forestry on ‘The Potential Effects of Global Warming and Global Climate Change on U.S. Agriculture and Forestry,’ Linda J. Fisher, Assistant Administrator for Policy, Planning, and Evaluation for the EPA, made the following statement: “There is scientific consensus that increases in atmospheric greenhouse gas concentrations will result in climate change.”⁸⁵

111. In a memorandum from Frederick M. Bernthal, Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs, to Richard T. McCormack, Under Secretary-Designate of State for Economic Affairs, dated February 9, 1989, Mr. Bernthal made the following statements: “While it is clear that we need to know more about climate change, prudence dictates that we also begin to weigh impacts and possible responses. We simply cannot wait—the costs of inaction will be too high.”⁸⁶

112. In a memorandum from Frederick M. Bernthal, Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs, to Richard T. McCormack, Under Secretary-Designate of State for Economic Affairs, dated February 9, 1989, Mr. Bernthal made the following statements: “[T]he U.S. must take the lead in international efforts to address global climate change. Others look to us to do so because we are best equipped to understand the problem and develop solutions. We also contribute substantially to the problem.”⁸⁷

113. On April 20, 1989, EPA Administrator William K. Reilly made the following statements

Energy & Power (Sept. 22, 1988). [Doc. 270-69; Bates P00000010512- P00000010781, at P00000010600].

⁸⁵ Testimony of Linda J. Fisher, Assistant Administrator for Policy, Planning, and Evaluation for the U.S. EPA 1 (Dec. 1, 1988). [Doc. 299-137/299-153; Bates P00000025150- P00000025173, at P00000025150].

⁸⁶ Doc. 341-188 at P00000060449.

⁸⁷ Doc. 341-188 at P00000060450.

before the National Press Club in Washington, D.C.: “We at the EPA are the long distance runners of government. The real test is not in the regulatory decisions that are made in March or April or May. The real test will be the health of our people and the quality of our environment at the turn of the century and beyond. And this is a test we dare not fail.”⁸⁸

114. *The Potential Effects of Global Climate Change on the United States: Appendix J – Policy* published, May 1989, by the Office of Policy, Planning and Evaluation, contains a report entitled *Climate Change and Water Resources in the Sacramento-San Joaquin Region of California: Policy Adjustment Options* in which William E. Reibsame and Jeffrey W. Jacobs of the Natural Hazards Research and Applications Information Center made the following statement: “Increasingly credible predictions indicate that anthropogenic climate changes are likely to merge from the noise of natural climate variability during the next decade or so. By the middle of the 21st century, global average temperatures may be 3 degrees to 5 degrees C warmer than present. Some analysts believe that global warming is already under way (Hansen et al, 1988, 1988; Hansen and Lebedeff, 1988), as evidenced by unusually warm temperatures in the 1980s.”⁸⁹

115. *The Potential Effects of Global Climate Change on the United States: Appendix J – Policy* published, May 1989, by the Office of Policy, Planning and Evaluation, contains a report entitled *Policy Implications of Global Climate Change Impacts Upon the Tennessee Valley Authority Reservoir System, Apalachicola River, Estuary, and Bay and South Florida*, in which

⁸⁸ U.S. EPA Administrator William K. Reilly, Environmental Protection in the Bush Administration: Measures By Which to Judge Us 4, 9 (April 20, 1989). [Doc. 299-138/299-154; Bates P00000025174- P00000025184 at P00000025179, P00000025184].

⁸⁹ U.S. EPA, *The Potential Effects of Global Climate Change on the United States Draft Report to Congress*, 600D88281, at 4-1 (Oct. 1988) [Doc. 299-136].

Mark Meo, et al, of the University of Oklahoma made the following statement: “General Circulation Model analyses of potential climate change impacts on South Florida suggest the following probable trends: (1) an increase in the rate of sea level rise; (2) an increase in the magnitude and frequency of tropical storms; (3) increased variability in rainfall quantity; and (4) increased evapotranspiration (Pielke et al. 1988; Rhoads et al. 1987).”⁹⁰

116. A 1990s State Department memorandum made the following statement: “The best scientific evidence indicates that the continued increase in greenhouse gas concentrations will cause the global climate to change.”⁹¹

117. A 1990s State Department memorandum made the following statement: “While many nations sought to set firm ‘targets and timetables’ for reducing greenhouse gas emissions, U.S. objection to firm commitments resulted in an agreement that sets a non-binding goal for developed countries to return emissions to 1990 levels by the end of the decade.”⁹²

118. In a February 5, 1990 Address to the Intergovernmental Panel on Climate Change at Georgetown University, President George H.W. Bush made the following statements: “We all know that human activities are changing the atmosphere in unexpected and unprecedented ways. Much remains to be done. Many questions remain to be answered. Together, we have a responsibility to ourselves and the generations to come, to fulfill our stewardship obligations.”⁹³

119. In a March 1990 report, *Greenhouse Effect: DOE’s Programs and Activities Relevant to*

⁹⁰ U.S. EPA, The Potential Effects of Global Climate Change on the United States Draft Report to Congress, 600D88281, at 6-11 (Oct. 1988) [Doc. 299-136].

⁹¹ Dep’t of State, PRD-12/Global Climate Change Policy Decision Paper (n.d.) [MIL #1 Exh. 19; Doc. 299-208; Bates, at P00000029864].

⁹² Dep’t of State, PRD-12/Global Climate Change Policy Decision Paper (n.d.) [MIL #1 Exh. 19; Doc. 299-208; Bates, at P00000029864].

⁹³ Doc. 341-196 at P00000061199.

the Global Warming Phenomenon, the U.S. General Accounting Office (now the Government Accountability Office) made the following statements: “DOE has concluded that currently available information about the increase of carbon dioxide in the atmosphere is cause for serious concern even at the most optimistic end of the range of predicted impacts,” but that “[t]he largest increase in proposed funding was for the Clean Coal Technology program within the Office of Fossil Energy. DOE has requested \$575 million, which is a 242 percent increase over the fiscal year 1989 funding level. DOE’s funding request for its conservation and renewable program area and nuclear energy program area is reduced for fiscal year 1990.”⁹⁴

120. In a memorandum to members of the Global Change Strategy Task Force dated May 21, 1990, D. Allan Bromley, Science Advisor to President George H.W. Bush, and Stephen Danzansky, former Special Assistant to President Reagan for National Security Affairs and Senior Director of International Economic Affairs, made the following statements: “Given the significant remaining scientific and economic uncertainties, we believe it is premature at this time to implement stringent measures for limiting greenhouse gas emissions solely to mitigate potential climate change” and that “We do not believe there is sufficient evidence at this time to warrant stringent measures, with potentially serious negative economic consequences, to limit greenhouse gas emissions.”⁹⁵

121. In a memorandum regarding the Second World Climate Conference to President George H.W. Bush dated October 23, 1990, Roger B. Porter, Director of the Domestic Policy Council made the following statements: “The northern Europeans and the Nordics want to establish

⁹⁴ Doc. 341-197 at P00000061217–18.

⁹⁵ Doc. 341-199 at P00000061310, P00000061313.

targets and timetables. We have refused, citing the probable negative effects on growth.”⁹⁶

122. In a memorandum regarding the Second World Climate Conference to President George H.W. Bush dated October 23, 1990, Roger B. Porter, Director of the Domestic Policy Council wrote: “The northern Europeans and the Nordics want to establish targets and timetables. We have refused, citing the probable negative effects on growth.”⁹⁷

123. In December 1990, the EPA issued a report to Congress, *Policy Options for Stabilizing Global Climate*, that contained the following statements: “Based on a wide range of policy options, from energy efficiency to new methods of rice cultivation, [this report] presents possible future scenarios of greenhouse gas emissions to the year 2100 depending on the level of response as well as many other independent factors. The results demonstrate that greenhouse gas emissions can be effectively reduced.”⁹⁸

124. In December 1990, the EPA issued a report to Congress, *Policy Options for Stabilizing Global Climate*, that contained the following statements: “The adoption of policies to limit emissions on a global basis, such as simultaneous pursuit of energy efficiency, non-fossil energy sources, reforestation, the elimination of CFCs [chlorofluorocarbons] and other measures, could reduce the rate of warming during the 21st century by 60% or more. Even under these assumptions, the Earth could ultimately warm by 1-4°C or more relative to pre-industrial times. Extremely aggressive policies to reduce emissions would be necessary to ensure that total warming is less than 2°C.”⁹⁹

⁹⁶ Doc. 341-205 at P00000061475.

⁹⁷ Doc. 341-205 at P00000061475.

⁹⁸ U.S. EPA, *Policy Options for Stabilizing Global Climate* xxiii (1990). [Doc. 299-139/299-155; Bates P00000007909- P00000008481, at P00000007930].

⁹⁹ U.S. EPA, *Policy Options for Stabilizing Global Climate* VI-1 (1990). [Doc. 299-139/299-155; Bates P00000007909- P00000008481, at P00000008308].

125. In December 1990, the EPA issued a report to Congress, *Policy Options for Stabilizing Global Climate*, that contained the following statements: “[W]hile it is not possible to stabilize greenhouse gas concentrations immediately, a global commitment to rapidly reduce greenhouse gas emissions might be able to stabilize their concentrations by the middle of the next century and even reduce concentrations toward current levels by the end of the next century. While humans may have already committed the earth to significant climate change during the next century, efforts undertaken now to limit the buildup of greenhouse gases in the atmosphere can dramatically reduce the rate and ultimate magnitude of such change.”¹⁰⁰

126. In December 1990, the EPA issued a report to Congress, *Policy Options for Stabilizing Global Climate*, that contained the following statements: “[P]olicy choices and investment decisions made during the next decade that are designed to increase the efficiency of energy use and shift the fuel mix away from fossil fuels could slow the rate of buildup sufficiently to avoid the most catastrophic potential impacts of rapid climate change. Alternatively, decisions to rapidly expand the use of coal, extend the use of the most dangerous CFCs, and rapidly destroy the remaining tropical forests could ‘push up the calendar,’ accelerating the onset of a dangerous global warming.”¹⁰¹

127. In its 1991 paper *Policy Implications of Greenhouse Warming*, the National Academy of Sciences’ Committee on Science, Engineering, and Public Policy made the following statements: “Despite the great uncertainties, greenhouse warming is a potential threat sufficient to justify action now. Some current actions could reduce the speed and magnitude of greenhouse warming;

¹⁰⁰ U.S. EPA, *Policy Options for Stabilizing Global Climate 2* (1990). [Doc. 299-139/299-155; Bates P00000007909- P00000008481, at P00000007935].

¹⁰¹ U.S. EPA, *Policy Options for Stabilizing Global Climate I-13* (1990) [Doc. 299-139/299-155; Bates P00000007909- P00000008481, at P00000007991].

others could prepare people and natural systems of plants and animals for future adjustments to the conditions likely to accompany greenhouse warming. There are a number of mitigation and adaptation options available to the United States. This panel recommends implementation of the options presented below through a concerted program to start mitigating further buildup of greenhouse gases and to initiate adaptation measures that are judicious and practical. It also recommends a strong scientific program to continue to reduce the many uncertainties.

International cooperation is essential in all areas.”¹⁰²

128. In a January 22, 1991 memorandum to the Domestic Policy Council on the Framework Convention on Climate Change, the U.S. Global Change Working Group made the following statements: “Over the past year, the U.S. has taken a prudent approach to the climate change issue. Other countries have been willing to commit themselves to specific targets and timetables for reducing greenhouse gas emissions with little regard, in some cases, for either the cost or the lack of information necessary to craft an effective plan. The U.S. is widely perceived as entering these negotiations in an isolated position, since it is the only major developed country that has not committed itself to a timetable for achieving specific greenhouse gas reductions.”¹⁰³

129. In February 1991, the Office of Technology Assessment reported issued a report to Congress, *Changing by Degrees: Steps to Reduce Greenhouse Gases*, that made the following statement: “But it is clear that the decision to limit emissions cannot await the time when the full impacts are evident. The lag time between emission of the gases and their full impact is on the order of decades to centuries, so too is the time needed to reverse any effects. Today’s emissions

¹⁰² Doc. 341-207 at P00000062203.

¹⁰³ Doc. 341-208 at P00000062265.

thus commit the planet to changes well into the 21st century.”¹⁰⁴

130. In a July 30, 1991 letter to John Sununu, White House Chief of Staff, David W. Loer, General Manager of Minnkota Power Cooperative made the following statements: “On behalf of the 80,000 customers served by our rural electric power system, I want to thank you for the strong position you have taken on the global warming issue. Your skepticism regarding carbon dioxide as a cause of global warming is a “breath of fresh air” to those of us who are very concerned about the consequences of adverse action or legislation dealing with this issue. In our research, we have also found a number of credible climatologists who are not agreeing with the catastrophic global warming theory. We need to find ways for them to be more involved in dealing with this important issue. We know there is an extreme amount of pressure on you and other staff in the Administration to convince you that there needs to be limits placed on carbon dioxide emissions. We appreciate your recognizing the severe economic impact of such action. Minnkota Power Cooperative, Inc., owns and operates only North Dakota coal-fired electric generating plants. Not surprisingly, we are hoping that your position on this issue prevails. Is there anything that we can do to assist you or your position on the global warming issue? Please call us – we would like to help.”¹⁰⁵

131. In October 1992, the United States Senate passed a resolution, providing advice and consent for the ratification of the United Nations Framework Convention on Climate Change (UNFCCC), which the President then ratified. Answer ¶ 145.

132. In its 1992 *Reports to the Nation on Our Changing Planet: The Climate System*, NOAA

¹⁰⁴ Office of Technology Assessment, *Changing by Degrees: Steps to Reduce Greenhouse Gases* 3 (1991). [Doc. 299-211; Bates P00000033358- P00000033716, at P00000033360, P00000033370].

¹⁰⁵ Doc. 341-214 at P00000062305.

made the following statements: “The nations of the world now face a great challenge - to anticipate future climate change and develop a rational program for protecting the environment. No need could be more pressing, no mission of greater import to future generations.”¹⁰⁶

133. In its 1992 *Reports to the Nation on Our Changing Planet: The Climate System*, NOAA made the following statements: “The buildup of these and other gases has already strengthened Earth’s greenhouse effect. But it may take several decades to feel the warming because atmospheric temperatures will rise significantly only after the oceans of the world have slowly warmed. The postponement may seem like an advantage, in that it gives us more time to prepare. However, the time lag could lead us to underemphasize the importance of the problem while we still have a chance to avert drastic climate change. In truth, we have already committed ourselves to some degree of warming, even if we could instantly halt the buildup of greenhouse gases in the atmosphere. Whatever lies ahead, the world is accelerating its pace toward that unknown end. In the last three decades, the annual global release of carbon dioxide has doubled, reflecting a climb in the rate of fossil fuel burning and deforestation. As human population and economic activities continue to grow, carbon dioxide emissions could double again in the next three decades unless the nations of the world limit their consumption of fossil fuels.”¹⁰⁷

134. In October 1995, EPA issued a report, *The Probability of Sea Level Rise*, EPA 230-R-95-008, that made the following statement: “Global warming is most likely to raise sea level 15 cm by the year 2050 and 34 cm by the year 2100. There is also a 10 percent chance that climate change will contribute 30 cm by 2050 and 65 cm by 2100.”¹⁰⁸

¹⁰⁶ Doc. 341-217 at P00000062367.

¹⁰⁷ Doc. 341-217 at P00000062366.

¹⁰⁸ U.S. EPA, EPA 230-R-95-008, *The Probability of Sea Level Rise* ii (1995). [Doc. 299-143/299-159; Bates P00000008566- P00000008761, at P00000008570].

135. In October 1995, EPA issued a report, *The Probability of Sea Level Rise*, EPA 230-R-95-008, that made the following statement: “Stabilizing global emissions in the year 2050 would be likely to reduce the rate of sea level rise by 28 percent by the year 2100, compared to what it would be otherwise.”¹⁰⁹

136. In October 1995, EPA issued a report, *The Probability of Sea Level Rise*, EPA 230-R-95-008, that made the following statement: “Stabilizing emissions by the year 2025 could cut the rate of sea level rise in half.”¹¹⁰

137. In 1995, Timothy E. Wirth, then-Undersecretary of State, reported to the First Conference of the Parties to the Framework Convention in Climate Change that by “increasing the concentration of greenhouse gases in the atmosphere at a rate unknown in all of human history, we are rolling the dice—gambling with our children’s and grandchildren’s future.”¹¹¹

138. At the Global Climate Change: An East Room Roundtable held at the White House on July 24, 1997, President Clinton made the following statements: “The whole issue of climate change must be looked at in terms of our deepest obligations to future generations.”¹¹²

139. At the Global Climate Change: An East Room Roundtable held at the White House on July 24, 1997, President Clinton made the following statements: “We cannot fulfill our responsibilities to future generations unless we deal responsibly with the challenge of climate

¹⁰⁹ U.S. EPA, EPA 230-R-95-008, *The Probability of Sea Level Rise* ii (1995). [Doc. 299-143/299-159; Bates P00000008566- P00000008761, at P00000008570].

¹¹⁰ U.S. EPA, EPA 230-R-95-008, *The Probability of Sea Level Rise* ii (1995). [Doc. 299-143/299-159; Bates P00000008566- P00000008761, at P00000008570].

¹¹¹ Timothy E. Wirth, Statement to First Conference of the Parties to the Framework Convention on Climate Change (Apr. 5, 1995) [MIL #1 Exh. 24; Doc. 299-213; Bates P00000033761-P00000033772, at P00000033763].

¹¹² Doc. 341-232 at P00000064314.

change.”¹¹³

140. At the Global Climate Change: An East Room Roundtable held at the White House on July 24, 1997, President Clinton made the following statements: “We must also protect the Earth for that new millenium, to ensure that the American people will benefit from the opportunities we are trying to create. We cannot fulfill our responsibilities to future generations unless we deal responsibly with the challenge of climate change.”¹¹⁴

141. In his opening remarks at the Discussion on Climate Change at the White House on July 24, 1997, President Clinton made the following statement: “To me, we have to see this whole issue of climate change in terms of our deepest obligations to future generations.”¹¹⁵

142. In his opening remarks at the Discussion on Climate Change at the White House on July 24, 1997, President Clinton made the following statement: “It is obvious that we cannot fulfill our responsibilities to future generations unless we deal responsibly with the challenge of climate change.”¹¹⁶

143. In his opening remarks at the Discussion on Climate Change at the White House on July 24, 1997, President Clinton made the following statement: “I believe the science demands that we face this challenge now. I’m positive that we owe it to our children.”¹¹⁷

144. In his opening remarks at the Discussion on Climate Change at the White House on July 24, 1997, President Clinton made the following statements: “And all of this gives rise to a great concern that we are committing future generations to a planet that is altered in profound ways

¹¹³ Doc. 341-232 at P00000064314.

¹¹⁴ Doc. 341-232 at P00000064314.

¹¹⁵ Doc. 341-234 at P00000064351.

¹¹⁶ Doc. 341-234 at P00000064351-P00000064352.

¹¹⁷ Doc. 341-234 at P00000064353.

that can cause great harm to future generations.”¹¹⁸

145. In his opening remarks at the Discussion on Climate Change at the White House on July 24, 1997, President Clinton made the following statements: “If we fail to act, scientists expect that our seas will rise one to three feet, and thousands of square miles here in the United States, in Florida, Louisiana, and other coastal areas will be flooded. Infectious diseases will spread to new regions. Severe heat waves will claim lives. Agriculture will suffer. Severe droughts and floods will be more common. These are the things that are reasonably predictable.”¹¹⁹

146. In remarks made at the SE Regional Climate Change Impacts Meeting at Vanderbilt University on June 25, 1997, Vice President Gore made the following statements: “We have a choice about the environmental legacy we leave to our children, and our children's children. They are depending on us to choose wisely.”¹²⁰

147. In remarks made on October 6, 1997 at the White House Conference on Climate Change, President Clinton made the following statement: “We do not want the young people who sat on these steps today, for whom 33 years will also pass in the flash of an eye, to have to be burdened or to burden their children with our failure to act.”¹²¹

148. In remarks made on October 22, 1997 before the National Geographic Society, President Clinton made the following statements: “But make no mistake, the problem is real. And if we do not change our course now, the consequences sooner or later will be destructive for America and for the world.”¹²²

¹¹⁸ Doc. 341-234 at P00000064350.

¹¹⁹ Doc. 341-234 at P00000064352.

¹²⁰ Doc. 341-231 at P00000064307.

¹²¹ Doc. 341-236 at P00000064389.

¹²² Doc. 341-237 at P00000064414.

149. In 1997, the CEQ issued its annual report to the President and Congress *Environmental Quality: Along the American River*, that made the following statement: “The average global temperature is projected to rise 2 to 6 degrees over the next century . . . [t]he longer we wait to reduce our emissions, the more difficult the job, and the greater the risks.”¹²³

150. In its *1997 Annual Report on Environmental Quality*, the CEQ made the following statements: “Since 1860, it is estimated that global CO₂ concentrations have increased from about 280 parts per million to about 360 parts per million today, or about 30 percent. Roughly half of that increase has occurred since 1970.”¹²⁴

151. In the early 2000s, the United States Forest Service (USFS) created advanced computer models producing the national-scale simulations of how ecosystems and fire regimes could change in the 21st century under climate change scenarios.¹²⁵

152. In her talking points for the G8 Environmental Ministerial Meeting Working Session on Climate Change in Trieste, Italy on March 3, 2001, then-EPA Administrator Christine Todd Whitman made the following statements: “Increasingly, there is little room for doubt that humans are affecting the Earth’s climate, that the climate change we’ve seen during the past century is the result of human activity, and that we must continue our efforts to stop and reverse the growth in the emission of greenhouse gases. If we fail to take the steps necessary to address

¹²³ Council on Env’tl Quality, *Environmental Quality: Along the American River*, at xi (1997), <https://ceq.doe.gov/docs/ceq-reports/ceq-annual-report-1996.pdf> [Doc. 299-214; Bates P00000039590- P00000039987, at P00000039599].

¹²⁴ Council on Env’tl Quality, *Environmental Quality: The 1997 Report of the Council on Environmental Quality* 194 (1998), <https://ceq.doe.gov/docs/ceq-reports/ceq-annual-report-1997.pdf> [Doc. 299-215; Bates P00000034026- P00000032393, at P00000034229].

¹²⁵ Valerie Rapp, Science Update: Western Forests, Fire Risk, and Climate Change, Pac. NW. Research Station, Jan. 2004, at 1, <https://www.fs.fed.us/pnw/pubs/science-update-6.pdf>. [Doc. 270-22; Bates P00000005557- P00000005567, at P00000005557].

the very real concern of global climate change, we put our people, our economies, and our way of life at risk.”¹²⁶

153. In May 2001, the National Energy Policy’s Report of the National Energy Policy Development Group made the following statement: “Energy-related activities are the primary sources of U.S. man-made greenhouse gas emissions, representing about 85% of the U.S. man-made total carbon equivalent in 1998.”¹²⁷

154. In an article entitled *Deadlock Stymies Global Climate Talks* and published on December 12, 2007 in the New York Times, Thomas Fuller and Peter Gelling made the following statements about global climate talks taking place in 2007: “[T]he United States and the European Union remained deadlocked on Tuesday on whether countries should commit now to specific emissions reductions in an agreement that may not be finalized for two more years. Over the weekend, officials from the United Nations, backed by the European Union and many developing countries, offered a draft plan for talks over the next two years, including a statement that dangerous warming can be avoided only if industrialized countries cut emissions by 2020 to levels 25 to 40 percent below those of 1990. But on Tuesday the United States remained firmly opposed to such language.”¹²⁸

155. In 2008, in response to the United Nations Office of the High Commissioner for Human Rights request for the United States’ views on “the relationship between climate change and human rights,” the Department of State made the following statement: “The United States

¹²⁶ Doc. 341-244 at P00000064740.

¹²⁷ National Energy Policy, Report of the National Energy Policy Development Group 3-10 (May 2001) [MIL #1 Exh. 33; Doc. 299-222; Bates P00000034562- P00000034731, at P00000034613].

¹²⁸ Doc. 341-270 at P0000066251.

considers a safe and sustainable environment to be an essential and shared goal—one that may further the realization of certain human rights, such as the ‘right to a standard of living adequate for the health and well-being’ of all individuals.”¹²⁹

156. In December 2009, the EPA made the following statement: “[T]he evidence provides compelling support for finding that greenhouse gas air pollution endangers the public welfare of both current and future generations.”¹³⁰

157. In June 2009, the U.S. Global Change Research Program (USGCRP) issued a report to Congress, *Second National Assessment: Global Climate Change Impacts in the United States*, that made the following statements: “Climate is one of the key factors in Americans’ choices of where to live. As the U.S. population grows, ages, and becomes further concentrated in cities and coastal areas, society is faced with additional challenges. Climate change is likely to exacerbate these challenges as changes in temperature, precipitation, sea levels, and extreme weather events increasingly affect homes, communities, water supplies, land resources, transportation, urban infrastructure, and regional characteristics that people have come to value and depend on.”¹³¹

158. In 2009 and 2016, the EPA “assessed the effects of greenhouse-gas pollution, and [] concluded that this pollution endangers the public health and welfare of current and future

¹²⁹ U.S. Dep’t of State, *Observations by the United States of America on the Relationship Between Climate Change and Human Rights* (2008), <https://www.state.gov/documents/organization/138855.pdf>. [MIL #1 Exh. 127; Doc. 270-89; Bates P00000020325-P00000020332, at P00000020325].

¹³⁰ U.S. EPA, *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act*, 74 Fed. Reg. 66496, 66498-99 (Dec. 15, 2009), <https://www.gpo.gov/fdsys/pkg/FR-2009-12-15/pdf/E9-29537.pdf> [MIL #1 Exh. 36; Doc. 299-225; Bates P00000036586- P00000036637, at P00000036589- P00000036590].

¹³¹ U.S. Global Change Research Program, *Second National Assessment: Global Climate Change Impacts in the United States* 100 (2009), <https://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf> [Doc. 299-224; Bates P00000034774- P00000034969, at P00000034877].

generations and thus requires Clean Air Act regulation. 74 Fed. Reg. 66,496 (Dec. 15, 2009); 81 Fed. Reg. 54,422 (Aug. 15, 2016).” Answer ¶ 5.¹³²

159. In May 2011, the Department of Energy issued a *Strategic Plan* that contained the following statements: “There is compelling evidence that carbon-dioxide emissions from human activities are adversely affecting the climate. Any path close to ‘business as usual’ will imperil future generations with dangerous and unacceptable economic, social, and environmental risks.”¹³³

160. In its 2011 Workshop Report, *Planning for Sea Level Rise in the Northeast: Considerations for the Implementation of Tidal Wetland Habitat Restoration Projects*, NOAA made the following statement: “The NOAA Restoration Center and partner organizations have been active in restoring tidal wetlands from these impacts for several decades, in order to promote the health of NOAA trust resources (fish, shellfish, marine mammals, sea turtles, and their habitats). While NOAA has not yet systematically included impacts of climate change into project selection and design, there is a clear need to address this threat in concert with the others currently addressed.”¹³⁴

161. In the Obama Administration’s June 2016 report *The Economics of Coal Leasing on*

¹³² U.S. EPA, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66496, 66498-99 (Dec. 15, 2009), <https://www.gpo.gov/fdsys/pkg/FR-2009-12-15/pdf/E9-29537.pdf> [Doc. 299-225; Bates P00000036586- P00000036637, at P00000036587, P00000036589-90].

¹³³ U.S. Dep’t of Energy, *Strategic Plan 2* (2011), https://www.energy.gov/sites/prod/files/2011_DOE_Strategic_Plan_.pdf. [Doc. 270-67; Bates P00000029877- P00000029936, at P00000029888].

¹³⁴ NOAA, *Planning for Sea Level Rise in the Northeast: Considerations for the Implementation of Tidal Wetland Habitat Restoration Projects* (2011), <https://repository.library.noaa.gov/view/noaa/4016>. [MIL #1 Exh. 371; Doc. 299-175; Bates P00000018003- P00000018045 P00000018008].

Federal Lands: Ensuring a Fair Return to Taxpayers, the White House made the following statement: “Many estimates of the external costs from the coal supply chain are large. Incorporating the social cost of carbon in coal royalties would imply a royalty rate of well-over 100 percent.”¹³⁵

162. In 2014, the Government Accountability Office report *Climate Change: Energy Infrastructure Risks and Adaptation Efforts* stated: “[W]e have reported these federal efforts [to address climate change] have been largely carried out in an ad hoc manner, with little coordination across federal agencies or with state and local governments. In 2013, our most recent update to the list of programs at high risk of waste, fraud, abuse, and mismanagement, we identified the federal government’s management of climate change risks as an area in need of fundamental transformation due to the fiscal exposure it presents.”¹³⁶

163. On June 19, 2017, when asked if he believed that “CO₂ is the primary control knob for the temperature of the earth and for climate,” Secretary of Energy Rick Perry made the following statement: “No. Most likely the primary control knob is the ocean waters and this environment that we live in.”¹³⁷

164. The consequences of climate change are already occurring and, in general, those consequences will become more severe with more fossil fuel emissions. Answer ¶ 10.

165. Dr. Michael Kuperberg, Executive Director of the USGCRP, made the following

¹³⁵ Doc. 341-302 at P00000070312.

¹³⁶ *Climate Change: Energy Infrastructure Risks and Adaptation Efforts*, GAO-14-74, at 9 (Jan. 2014), <https://www.gao.gov/assets/670/660558.pdf> (to be filed with Plaintiffs’ Third Motion *in Limine*).

¹³⁷ US Energy Secretary: CO₂ is Not the Primary Control Knob for Climate Change, CNBC (June 19, 2017 9:06 AM). [MIL #1 Exh. 102; Doc. 270-64; Bates P00000017958-P00000017962].

statement: The United States “is currently in a danger zone when it comes to our climate system” due to climate change.¹³⁸

166. During the last decade, Defendants have repeatedly stated that allowing “business as usual” CO₂ emissions will imperil future generations with dangerous and unacceptable economic, social, and environmental risks. Answer ¶ 150.

167. The EPA develops the United States Greenhouse Gas Emissions Inventory, which does not include emissions embedded in imported goods consumed in the United States. Answer ¶ 159.

168. The Department of Commerce, through the National Oceanic and Atmospheric Administration (NOAA), has authority over and operates equipment that monitors GHGs. Answer ¶ 119.

169. The use of fossil fuels is a major source of CO₂ emissions and places the United States on an increasingly costly, insecure, and environmentally dangerous path. Answer ¶ 150.

170. In 2011, fossil fuel combustion in the U.S. accounted for 94% of CO₂ emissions. Answer ¶ 158.

171. From 1850 to 2012, CO₂ emissions from the United States (including from land use) constituted more than 25% of cumulative global CO₂ emissions. Answer ¶¶ 7, 151.

172. In its *Monthly Energy Review* issued in July 2018, the U.S. Energy Information Administration reported that total U.S. CO₂ emissions from energy consumption have increased by 9% from 1973 to 2017.¹³⁹

173. In the 2018 report *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016*, the

¹³⁸ Kuperberg Deposition at 151:5-8.

¹³⁹ Doc. 341-313 at P00000073109.

EPA reported that total U.S. GHG emissions have increased by 3.5% from 1990 to 2015 and by 2.4% from 1990 to 2016.¹⁴⁰

174. Between 1991 and 2015, 130,466 million metric tons of CO₂ emissions were released from fossil fuel combustion in the United States. Answer ¶ 153.

175. In the 2018 report *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016*, the EPA reported that overall, from 1990 to 2016, total emissions of CO₂ increased by 189.6 MMT CO_{2e} (3.7 percent).¹⁴¹

176. In the 2018 report *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016*, the EPA reported that, in 2016, “[t]he primary greenhouse gas emitted by human activities in the United States was CO₂, representing approximately 81.6 percent of total greenhouse gas emissions.”¹⁴²

177. In the 2018 report *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016*, the EPA reported that, in 2016, the largest source of CO₂, and of overall greenhouse gas emissions in the United States was fossil fuel combustion, accounting for 93.5% of CO₂ emissions in 2015.¹⁴³

¹⁴⁰ U.S. Env’tl Protection Agency, EPA 430-R-18-003, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016*, at ES-4 (2018), https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf. [MIL #1 Exh. 178; Doc. 270-140; Bates P00000029104- P00000029758].

¹⁴¹ U.S. Env’tl Protection Agency, EPA 430-R-18-003, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016* (2018), https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf. [MIL #1 Exh. 178; Doc. 270-140; Bates P00000029104- P00000029758, at P00000029138].

¹⁴² U.S. Env’tl Protection Agency, EPA 430-R-18-003, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016* (2018), https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf. [MIL #1 Exh. 178; Doc. 270-140; Bates P00000029104- P00000029758, at P00000029137].

¹⁴³ U.S. Env’tl Protection Agency, EPA 430-R-18-003, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016* (2018), https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf. [MIL #1 Exh. 178; Doc. 270-140; Bates P00000029104- P00000029758, at P00000029139].

178. In 2016, with respect to total U.S. GHG emissions of 6,511 million metric tons of CO₂ equivalent, the transportation sector was responsible for 28%; the electricity sector was responsible for 28%; the industry sector was responsible for 22%; the commercial and residential sector was responsible for 11%; and the agricultural sector was responsible for 9%.¹⁴⁴

179. In its *Monthly Energy Review* issued in July 2018, the U.S. Energy Information Administration reported that, in 2017, total U.S. CO₂ emissions were 5,142 MMT CO₂.¹⁴⁵

180. In the 2018 report *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016*, the EPA reported that, in 2016, fossil fuel combustion accounted for 93.5% of all CO₂ emissions in the U.S.¹⁴⁶

181. In the 2018 report *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016*, the EPA reported that, in 2017, CO₂ emissions from energy consumption in the United States was approximately 5,153 million metric tons, with 28.5% from natural gas, 25.8% from coal, and approximately 45% from petroleum.¹⁴⁷

182. In its *Monthly Energy Review* issued in July 2018, the U.S. Energy Information Administration reported that, in 1973, total CO₂ emissions in the U.S. from energy consumption was approximately 4,715 MMT, with approximately 25% from natural gas, 26% from coal, and

¹⁴⁴ Sources of Greenhouse Gas Emissions, U.S. Env'tl. Prot. Agency, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> (last visited Apr. 25, 2018). [MIL #1 Exh. 133; Doc. 270-95; Bates P00000029759- P00000029775, at P00000029759].

¹⁴⁵ Doc. 341-313 at P00000073109.

¹⁴⁶ U.S. Env't'l Protection Agency, EPA 430-R-18-003, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016*, at ES-10 (2018), https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf. [MIL #1 Exh. 178; Doc. 270-140; Bates P00000029104- P00000029758, at P00000029139].

¹⁴⁷ U.S. Energy Info. Admin., March 2018: *Monthly Energy Review* 181 (2018), <https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf>. [MIL #1 Exh. 135; Doc. 270-97; Bates P00000027839- P00000028082, at P00000028029].

49% from petroleum.¹⁴⁸

183. In its *Monthly Energy Review* issued in July 2018, the U.S. Energy Information Administration reported that, in 1990, total CO₂ emissions in the U.S. from energy consumption was approximately 4,715 MMT, with approximately 20% from natural gas, 36% from coal, and 43% from petroleum.¹⁴⁹

184. Coal produced from federal lands is responsible for roughly 10% of United States greenhouse gas emissions.¹⁵⁰

185. In 2016, methane emissions, which make up 10% of 2015 U.S. greenhouse gas emissions, resulted primarily from enteric fermentation associated with domestic livestock, natural gas systems, and decomposition of wastes in landfills.¹⁵¹

186. In 2015, agricultural soil management, manure management, mobile source fuel combustion, and stationary fuel combustion were the major sources of N₂O emissions, which make up 5.7% of 2015 U.S. greenhouse gas emissions.¹⁵²

187. The transportation sector is the largest industry sector producer of greenhouse gas

¹⁴⁸ Doc. 341-313 at P00000073109.

¹⁴⁹ Doc. 341-313 at P00000073109.

¹⁵⁰ U.S. Dep't of the Interior, Secretarial Order No. 3338, Discretionary Programmatic Environmental Impact Statement to Modernize the Federal Coal Program 4 (2016), https://www.blm.gov/sites/blm.gov/files/programs_energyandminerals_coalSO3338.pdf. [MIL #1 Exh. 203; Doc. 299-7; Bates P00000024079- P00000024088, at P00000024082].

¹⁵¹ U.S. Env't'l Protection Agency, EPA 430-R-18-003, Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016, at ES-8 (2018), https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf. [MIL #1 Exh. 178; Doc. 270-140; Bates P00000029104- P00000029758, at P00000029136- P00000029137].

¹⁵² U.S. Env't'l Protection Agency, EPA 430-R-18-003, Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016, at ES-8 (2018), https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf. [MIL #1 Exh. 178; Doc. 270-140; Bates P00000029104- P00000029758, at P00000029138].

emissions in the United States, accounting for approximately 28% (6,511 million metric tons of CO₂ equivalent) of total U.S. greenhouse gas emissions in 2016.¹⁵³

188. Over 90% of the fuel used for transportation in the United States is petroleum based, which includes gasoline and diesel.¹⁵⁴

189. Greenhouse gas emissions by the transportation sector in the United States grew by 14% between 1990 and 2014.¹⁵⁵

190. Between 1990 and 2004, average fuel economy among new vehicles sold annually declined, as sales of light-duty trucks increased.¹⁵⁶

191. In 2015, light-duty vehicles contributed 60% of the greenhouse gas emissions in the transportation sector in the United States.¹⁵⁷

192. As of 2016, U.S. domestic aviation contributed about 2.57% of total U.S. CO₂

¹⁵³ Sources of Greenhouse Gas Emissions, U.S. Env'tl. Prot. Agency, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> (last visited Apr. 25, 2018). [MIL #1 Exh. 133; Doc. 270-95; Bates P00000029759- P00000029775, at P00000029759]; *see also* Answer ¶ 191 (transportation sector accounted for 28% of U.S. emissions in 2012).

¹⁵⁴ Sources of Greenhouse Gas Emissions, U.S. Env'tl. Prot. Agency, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> (last visited Apr. 25, 2018). [MIL #1 Exh. 133; Doc. 270-95; Bates P00000029759- P00000029775, at P00000029759].

¹⁵⁵ U.S. Dep't of Transp., Research, Development, and Technology Strategic Plan: FY 2017–2021, at 75 (2016), <https://www.transportation.gov/sites/dot.gov/files/docs/USDOT-RD%26T-Strategic-Plan-Final-011117.pdf>. [MIL #1 Exh. 134; Doc. 270-96; Bates P00000026778- P00000026909, at P00000026856].

¹⁵⁶ Sources of Greenhouse Gas Emissions, U.S. Env'tl. Prot. Agency, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> (last visited Apr. 25, 2018). [MIL #1 Exh. 133; Doc. 270-95; Bates P00000029759- P00000029775, at P00000029763].

¹⁵⁷ U.S. Env'tl. Prot. Agency, EPA-420-F-17-013, Fast Facts: U.S. Transportation Sector Greenhouse Gas Emissions 1990–2015, at 1 (2017), <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100S7NK.pdf>. [MIL #1 Exh. 146; Doc. 270-108; Bates P00000028476- P00000028480].

emissions.¹⁵⁸

193. The Department of Transportation has recognized methane emissions associated with pipeline and storage leaks are significant contributors to greenhouse gas emissions.¹⁵⁹

194. Methane emissions from the transmission and storage of natural gas in the United States account for approximately 20% of emissions from natural gas systems, and totaled 32.8 MMT CO₂ equivalent in 2016.¹⁶⁰

195. The overall production and consumption of fossil fuels in the United States has increased over the last 50 years. Answer ¶ 152.

196. In 2012, the United States was second in “Total Primary Coal Production,” with 1,016,458 thousand short tons. Answer ¶ 160.

197. In 2013, the United States produced 984,842 thousand short tons of coal.¹⁶¹

198. In 2014, the United States produced 1,000,049 thousand short tons of coal.¹⁶²

199. In 2015, the United States produced 896,941 thousand short tons of coal.¹⁶³

200. In 2016, the United States was the third largest producer of coal, producing 728,364

¹⁵⁸ U.S. Env’tl Protection Agency, EPA 430-R-18-003, Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016, at ES-4 (2018), https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf. [MIL #1 Exh. 178; Doc. 270-140; Bates P00000029104- P00000029758, at P00000029175].

¹⁵⁹ U.S. Dep’t of Transp., Research, Development, and Technology Strategic Plan: FY 2017–2021, at 75 (2016), <https://www.transportation.gov/sites/dot.gov/files/docs/USDOT-RD%26T-Strategic-Plan-Final-011117.pdf>. [MIL #1 Exh. 177; Doc. 270-139; Bates P00000026778- P00000026909, at P00000026856].

¹⁶⁰ U.S. Env’tl. Protection Agency, EPA 430-R-18-003, Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016, at 3-79 (2018), https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf. [MIL #1 Exh. 178; Doc. 270-140; Bates P00000029104- P00000029758, at P00000029299].

¹⁶¹ U.S. EIA, <http://www.eia.gov/beta/international/data/browser/#>.

¹⁶² U.S. EIA, <http://www.eia.gov/beta/international/data/browser/#>.

¹⁶³ U.S. EIA, <http://www.eia.gov/beta/international/data/browser/#>.

thousand short tons of coal.¹⁶⁴

201. Coal production in the United States in 2016 was about the same as production was in 1977.¹⁶⁵

202. In 2012, the United States was second in “Total Primary Energy Production,” producing approximately 79.212 Quadrillion BTU. Answer ¶ 160.

203. In 2013, the United States produced 81.088 Quadrillion BTU total primary energy.¹⁶⁶

204. In 2014, the United States produced 87.025 Quadrillion BTU total primary energy.¹⁶⁷

205. In 2015, the United States produced 83.536 Quadrillion BTU total primary energy.¹⁶⁸

206. In 2014, the United States was the largest producer of total petroleum and other liquids with 13,973 thousand barrels produced per day. Answer ¶ 161.

207. In 2014, total fossil fuel production in the United States, including natural gas plant liquids, was 69.653 Quadrillion BTU. Answer ¶ 155.

208. In 2018, the International Energy Agency reported that the U.S. likely surpassed Russia and Saudi Arabia to become the world’s largest crude oil producer.¹⁶⁹

209. The United States is by far the dominant producer of both shale gas and tight oil in the

¹⁶⁴ U.S. EIA, <http://www.eia.gov/beta/international/data/browser/#>.

¹⁶⁵ U.S. Energy Facts Explained: Consumption & Production, Energy Info. Admin., https://www.eia.gov/energyexplained/?page=us_energy_home. [MIL #1 Exh. 88; Doc. 270-50; Bates P00000017956- P00000017957, at P00000017956].

¹⁶⁶ U.S. EIA, <http://www.eia.gov/beta/international/data/browser>.

¹⁶⁷ U.S. EIA, <http://www.eia.gov/beta/international/data/browser>.

¹⁶⁸ U.S. EIA, <http://www.eia.gov/beta/international/data/browser>.

¹⁶⁹ Today in Energy: The United States is Now the Largest Global Crude Oil Producer, EIA, <https://www.eia.gov/todayinenergy/detail.php?id=37053>; *see also* The White House, News Clips, *U.S. Will Be The World’s Largest Oil Producer By 2023, Says IEA* (Mar. 5, 2018), <https://www.whitehouse.gov/briefings-statements/u-s-will-worlds-largest-oil-producer-2023-says-iea/>. [MIL #1 Exh. 109; Doc. 270-71; Bates P00000017978- P00000017979, at P00000017978] (predicting U.S. as top producer by 2023).

world. Answer ¶ 162.

210. The United States produces commercial volumes of natural gas or crude oil from shale formations. Answer ¶ 162.

211. In 2012, the United States was the largest producer of natural gas, producing a total of 24,058 billion cubic feet (Bcf). Answer ¶ 160.

212. The Department of Energy's Energy Information Administration (EIA) estimates that shale gas will account for just over one half of the total U.S. natural gas production by 2040.¹⁷⁰

213. On March 20, 2018, Department of State Deputy Assistant Secretary Sandra Oudkirk made the following statements at Martens Centre Event: Economics vs. Geopolitics? Nord Stream 2, Ukraine, and Europe's Energy Security in Brussels: "The United States is now the largest gas producer in the world. Admittedly, most of that gas is consumed in the United States."¹⁷¹

214. On November 17, 2017, Department of State Deputy Assistant Secretary, Bureau of Energy Resources John McCarrick made the following statement at the U.S. Gas Infrastructure Exports Initiative Launch Event in Washington, D.C.: "In ten years the United States has nearly doubled its oil production; increased natural gas production by 40 percent; and transformed from being a natural gas importer to a natural gas exporter, including in liquefied natural gas

¹⁷⁰ U.S. Dep't of Energy, U.S. Dep't of Interior, U.S. EPA, Federal MultiAgency Collaboration on Unconventional Oil and Gas Research: A Strategy for Research & Development (July 18, 2014). [MIL #1 Exh. 99; Doc. 270-61; Bates P00000011180- P0000001119, at P00000011182].

¹⁷¹ U.S. Dep't of State, News & Events, Remarks by DAS Sandra Oudkirk, Bureau of Energy Resources, at Martens Centre in Brussels (March 20, 2018), <https://useu.usmission.gov/remarks-das-sandra-oudkirk-bureau-energy-resources-martens-centre-brussels/> (last visited June 6, 2018). [MIL #1 Exh. 119; Doc. 270-81; Bates P00000020417-P00000020418, at P00000020404].

(LNG).”¹⁷²

215. The combustion of fossil fuels occurs primarily in the following sectors: energy and refineries, transportation, and manufacturing. Answer ¶ 185.

216. The five major fuel consuming economic sectors contributing to CO₂ emissions from fossil fuel combustion for energy are electric power, transportation, industrial, residential, and commercial.¹⁷³

217. Approximately 68% of U.S. electricity is generated from burning fossil fuels, mostly coal and natural gas.¹⁷⁴

218. Between 1991-2014, at least 127,600 million metric tons of CO₂ was emitted from fossil fuel combustion in the United States. Answer ¶ 153.

219. In 2014, total fossil fuel energy consumption in the United States was 80.240 Quadrillion Btus. Answer ¶ 156.

220. In 2012, petroleum accounted for 36.5 percent of total energy consumption in the United States and was the single largest source of energy consumption in the United States. Answer ¶ 186.

¹⁷² U.S. Dep’t of State, 2017 Remarks, Releases and Fact Sheets, Remarks at the U.S. Gas Infrastructure Exports Initiative Launch Event (Nov. 17, 2017), <https://www.state.gov/e/enr/rls/2017/275826.htm> (last visited June 5, 2018). [MIL #1 Exh. 120; Doc. 270-82; Bates P00000020412-P00000020413, at P00000020412].

¹⁷³ U.S. Env’tl Protection Agency, EPA 430-R-18-003, Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016, at ES-11 (2018), https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf. [MIL #1 Exh. 178; Doc. 270-140; Bates P00000029104- P00000029758, at P00000029140].

¹⁷⁴ Sources of Greenhouse Gas Emissions, U.S. Env’tl. Prot. Agency, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> (last visited Apr. 25, 2018). [MIL #1 Exh. 133; Doc. 270-95; Bates P00000029759- P00000029775, at P00000029759].

221. In 2017 coal-fired electricity made up 30% of energy generation in the United States.¹⁷⁵

222. The transportation sector in the United States consumed 28,199 Trillion BTU (28.8%) of primary energy consumption in the United States in 2017.¹⁷⁶

223. In 2015, the largest sources of transportation CO₂ emissions were passenger cars (37.6%), medium- and heavy-duty trucks (20.6%), light-duty trucks, which include sport utility vehicles, pickup trucks and minivans (16.1%), commercial aircraft (6.0%), rail (2.1%), other aircraft (2.0%), pipelines (1.9%), and ships and boats (1.6%).¹⁷⁷

224. In its Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016, the U.S. EPA made the following statement: “The largest sources of transportation greenhouse gases in 2016 were passenger cars (41.6 percent), freight trucks (22.9 percent), light-duty trucks, which include sport utility vehicles, pickup trucks, and minivans (18.0 percent), commercial aircraft (6.5 percent), other aircraft (2.6 percent), ships and boats (2.3 percent), rail (2.2 percent), and pipelines (2.1 percent).”¹⁷⁸

225. The Department of Transportation expects petroleum use in the transportation sector in

¹⁷⁵ Electricity Data Browser, U.S. Energy Info. Admin., <https://www.eia.gov/electricity/data/browser> (last visited Mar. 11, 2018). [MIL #1 Exh. 199; Doc. 299-3; Bates P00000024940- P00000024941, at P00000024940].

¹⁷⁶ U.S. Energy Info. Admin., March 2018: Monthly Energy Review 31 (2018), <https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf>. [MIL #1 Exh. 135; Doc. 270-97; Bates P00000027839- P00000028082, at P00000027879].

¹⁷⁷ U.S. Env'tl. Prot. Agency, EPA-420-F-17-013, Fast Facts: U.S. Transportation Sector Greenhouse Gas Emissions 1990–2015, at 2 (2017), <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100S7NK.pdf>. [MIL #1 Exh. 146;; Doc. 270-108; Bates P00000028476- P00000028480, at P0000002847].

¹⁷⁸ U.S. Env'tl. Prot. Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016 (2018) at 2-30, https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf. [MIL #1 Exh. 178; Doc. 270-140; Bates P00000029104- P00000029758, at P00000029213].

the United States to remain at about 13.5 million barrels per day through 2040 and beyond.¹⁷⁹

226. The U.S. Global Change Research Program (USGCRP) was established to “carry out research and support the Nation’s response to global change.”¹⁸⁰

227. The USGCRP consists of thirteen federal agencies, including Department of Agriculture, Department of Commerce, Department of Defense, Department of Energy, Department of the Interior, Department of State, Department of Transportation, and the Environmental Protection Agency.¹⁸¹

228. The Department of Transportation is a federal agency overseeing the United States’ aviation, road, highway, railway, truck, and marine transportation infrastructure. Answer ¶ 114.

229. The Department of Transportation’s Federal Aviation Administration (FAA) and the Federal Highway Administration administer programs that provide financing for the construction and maintenance of a portion of the nation’s transportation infrastructure. Answer ¶ 114(a).

230. The Department of Transportation states that it oversees the operation of the United States transportation system, including more than 3.9 million miles of public roads, 120,000 miles of major railroads, 25,000 miles of commercially navigable waterways, 5,000 public-use airports, 500 major urban public transit operators and more than 300 coastal, Great Lakes, and

¹⁷⁹ U.S. Dep’t of Transp., Bureau of Transp. Statistics, Transportation Statistics Annual Report 178 (2016), https://www.bts.gov/sites/bts.dot.gov/files/docs/TSAR_2016.pdf. [MIL #1 Exh. 138; Doc. 270-100; Bates P00000026910- P00000027155, at P00000027099].

¹⁸⁰ U.S. Global Change Research Program, Climate Science Special Report, Fourth National Climate Assessment (NCA4), Vol. I, 1 n.2 (2017) [Doc. 341-309; Bates P00000071751-P00000072227, at P00000071757].

¹⁸¹ U.S. Global Change Research Program, Climate Science Special Report, Fourth National Climate Assessment (NCA4), Vol. I, 1 n.2 (2017) [Doc. 341-309; Bates P00000071751-P00000072227, at P00000071757].

inland waterways ports.¹⁸²

231. The Department of Transportation's Office of Pipeline Safety (OPS) states that it governs the safety standards, procedures, and actual development and expansion of oil and natural gas pipeline systems in the U.S.; pipelines cannot begin operation until certified safe by OPS.¹⁸³

232. The Department of Transportation's Federal Railroad Administration's (FRA) mission is "to enable the safe, reliable, and efficient movement of people and goods for a strong America, now and in the future"; FRA accomplishes this mission through (1) issuance, implementation, and enforcement of safety regulations; (2) selective investment in rail corridors across the country; and (3) research and technology development.¹⁸⁴

233. The Department of Transportation's Maritime Administration (MARAD) is responsible for considering and acting on applications for deepwater ports managing fossil fuel imports and exports.¹⁸⁵

234. In its 2010 report to Congress *Transportation's Role in Reducing U.S. Greenhouse Gas*

¹⁸² U.S. Dep't of Transp., Climate Adaptation Plan: Ensuring Transportation Infrastructure and System Resilience 5–6 (2014), <https://www.transportation.gov/sites/dot.dev/files/docs/DOT%20Adaptation%20Plan.pdf>. [MIL #1 Exh. 131; Doc. 270-93; Bates P00000028083- P00000028111, at P00000028087-P00000028088].

¹⁸³ U.S. Natural Gas Regulatory Authorities, U.S. Energy Info. Admin., https://www.eia.gov/naturalgas/archive/analysis_publications/ngpipeline/regulatory.html (last visited Apr. 25, 2018). [MIL #1 Exh. 170; Doc. 270-132; Bates P00000029786- P00000029787, at P00000029786]; General Pipeline FAQs, PHMSA, <https://www.phmsa.dot.gov/faqs/general-pipeline-faqs> (last visited Apr. 25, 2018). [MIL #1 Exh. 171; Doc. 270-133; Bates P00000029781- P00000029785, at P00000029783].

¹⁸⁴ Overview, Fed. Railroad Admin., <https://www.fra.dot.gov/Page/P0351> (last visited Apr. 25, 2018). [MIL #1 Exh. 179; Doc. 270-141; Bates P00000028474- P00000028475, at P00000028474].

¹⁸⁵ Deepwater Port Licensing Program: Welcome to the Maritime Administration's Deepwater Port Licensing for LNG and Oil Webpage, MARAD, <https://www.marad.dot.gov/ports/office-of-deepwater-ports-and-offshore-activities/> (last visited Apr. 25, 2018). [MIL #1 Exh. 189; Doc. 270-151; Bates P00000029796- P00000029797].

Emissions, the Department of Transportation made the following statement: “[The United States’] historic approach to transportation and land use has created an energy-intensive system dependent on carbon-based [fuels] and automobiles.”¹⁸⁶

235. For over 230 years, the Department of Defense’s Army Corps of Engineers has been entrusted with the development and stewardship of much of the Nation’s public water resources.¹⁸⁷

236. Pipeline developers are required to obtain authorizations from the U.S. Army Corps of Engineers before constructing pipeline segments that may affect federally regulated waters and wetlands.¹⁸⁸

237. The Department of Interior, through its agencies including the BLM, U.S. Fish & Wildlife Service (FWS), and the Bureau of Ocean Energy Management (BOEM), manages the federal government’s surface and subsurface land (including the Outer Continental Shelf) and offers some of these lands for fossil fuel development.¹⁸⁹

¹⁸⁶ U.S. Dep’t of Transp., *Transportation’s Role in Reducing U.S. Greenhouse Gas Emissions: Volume 1 Synthesis Report ES-10* (2010) (report to Congress). [MIL #1 Exh. 132; Doc. 270-94; Bates P00000028491- P00000029095, at P00000028516].

¹⁸⁷ U.S. Army Corps of Eng’rs, *Sustainable Solutions to America’s Water Resources Needs 8* (2016), <http://cdm16021.contentdm.oclc.org/utis/getfile/collection/p16021coll9/id/61>. [MIL #1 Exh. 302; Doc. 299-106; Bates P00000019150- P00000019185, at P00000019157].

¹⁸⁸ Cong. Research Serv., R44880, *Oil and Natural Gas Pipelines: Role of the U.S. Army Corps of Engineers* (2017), https://www.everycrsreport.com/files/20170628_R44880_1105a52fd838d2e8d342c75e49199c8bcdeb6607.pdf. [MIL #1 Exh. 298; Doc. 299-102; Bates P00000019657- P00000019689, at P00000019658].

¹⁸⁹ Carol Hardy Vincent et al., Cong. Research Serv., R42346, *Federal Land Ownership: Overview and Data 4–5* (2017), <https://fas.org/sgp/crs/misc/R42346.pdf>. [MIL #1 Exh. 191; Doc. 270-153; Bates P00000024557- P00000024584, at P00000024563- P00000024564]; accord U.S. Dep’t of the Interior, Bureau of Land Mgmt., *Public Land Statistics 2015*, at 7–8 (2016), <https://www.blm.gov/sites/blm.gov/files/documents/files/Public%20Land%20Statistics2015%20%281%29.pdf>. [MIL #1 Exh. 192; Doc. 270-154; Bates P00000024610- P00000024885, at P00000024626- P00000024627].

238. The Department of Interior has made the following statement: “[DOI] plays a significant role in meeting the President’s challenge to manage America’s resources to responsibly produce more energy at home.”¹⁹⁰

239. The Department of the Interior’s Bureau of Ocean Energy Management “is responsible for administering the leasing program for oil and gas resources on the OCS and developing a five-year schedule of lease sales designed to ‘best meet national energy needs’ for the five -year period following the schedule’s approval, as required in Section 18 of the OCSLA, 43 U.S.C. 1334.”¹⁹¹

240. The Department of Agriculture “is responsible for the management of 193 million acres of national forests and grasslands in the National Forest System.”¹⁹²

241. The Department of Energy states that it is responsible for advancing the energy, environmental, and nuclear security of the United States; promoting scientific and technological innovation in support of that mission; sponsoring basic research in the physical sciences; and ensuring the environmental cleanup of the nation’s nuclear weapons complex.¹⁹³

242. The Department of Energy states that it leads national efforts to develop technologies to

¹⁹⁰ Dep’t of the Interior, New Energy Frontier, at DH-27 (2012), https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/FY2013_BIB_DH027.pdf. [MIL #1 Exh. 194; Doc. 270-156; Bates P00000020743- P00000020756, at P00000020743].

¹⁹¹ Doc. 341-307 at P00000070850.

¹⁹² Jane A. Leggett, Cong. Research Serv., R43915, Climate Change Adaptation by Federal Agencies: An Analysis of Plans and Issues for Congress 34 (2015), <http://nationalaglawcenter.org/wp-content/uploads/assets/crs/R43915.pdf>. [MIL #1 Exh. 39; Doc. 270-1; Bates P00000004358- P00000004461, at P00000004396]; U.S. Dep’t of Agric., Forest Serv., FS-957b, National Roadmap for Responding to Climate Change 6 (2011), <https://www.fs.fed.us/climatechange/pdf/Roadmapfinal.pdf>. [MIL #1 Exh. 47; Doc. 270-9; Bates P00000000986- P00000001017, at P00000000993].

¹⁹³ U.S. Dep’t of Energy, DOE/CF-0067, *Strategic Plan 2014-2018*, at 1 (2014), https://www.energy.gov/sites/prod/files/2014/04/f14/2014_dept_energy_strategic_plan.pdf. [MIL #1 Exh. 106; Doc. 270-68; Bates P00000011148- P00000011179, at P00000011153].

modernize the electricity grid, enhance the security and resilience of energy infrastructure, and expedite recovery from energy supply disruptions.¹⁹⁴

243. The Department of State’s mission is to “advance[] freedom for the benefit of the American people and the international community by helping to build and sustain a more democratic, secure, and prosperous world composed of well-governed states that respond to the needs of their people, reduce widespread poverty, and act responsibly within the international system.” The Department “seeks a leadership role in convening partners to build global capacity towards the understanding of and resilience to climate change risks, particularly in the most vulnerable countries.”¹⁹⁵

244. The Department of State, through the Office of the Special Envoy for Climate Change, is the Administration’s chief climate negotiator. Answer ¶ 123(b).

245. In August 2017, then-Secretary of State Rex Tillerson eliminated the Department of State’s position of Special Envoy for Climate Change.¹⁹⁶

246. The EPA possesses regulatory authorities and issues permits under the Clean Air Act, Clean Water Act, Safe Drinking Water Act, Resource Conservation and Recovery Act, and possesses certain regulatory authorities under the Comprehensive Environmental Response, Compensation, and Liability Act. Answer ¶ 125.

¹⁹⁴ U.S. Dep’t of Energy, DOE/CF-0067, *Strategic Plan 2014-2018*, at 1 (2014), https://www.energy.gov/sites/prod/files/2014/04/f14/2014_dept_energy_strategic_plan.pdf. [MIL #1 Exh. 106; Doc. 270-68; Bates P00000011148- P00000011179, at P00000011153].

¹⁹⁵ U.S. Dep’t of State, FY 2014 Climate Change Adaptation Plan (unclassified), <https://www.state.gov/documents/organization/233779.pdf>. [MIL #1 Exh. 126; Doc. 270-88; Bates P00000020333-P00000020355, at P00000020335].

¹⁹⁶ Elise Labott et al., First on CNN: Tillerson Moves to Ditch Special Envoys, CNN (Aug. 29, 2017m 4:51 AM), <https://www.cnn.com/2017/08/28/politics/tillerson-state-dept-envoys/index.html> (to be filed with Plaintiffs’ Third Motion *in Limine*).

247. The Department of Commerce describes its mission as “to create the conditions for economic growth and opportunity by promoting “job creation and economic growth by ensuring fair and reciprocal trade, providing the data necessary to support commerce and constitutional democracy, and fostering innovation by setting standards and conducting foundational research and development.”¹⁹⁷

248. The Department of Commerce “oversees ocean and coastal navigation.”¹⁹⁸

249. In a September 15, 2000 Memorandum Opinion for the Solicitor of the Department of the Interior, General Counsel for the Department of Commerce’s National Oceanic and Atmospheric Administration (NOAA) and the Council on Environmental Quality stated that the federal government “maintains ample room under the [public trust] doctrine to exercise dominion over [the territorial sea] to protect it and its resources for public enjoyment.”¹⁹⁹

250. The White House’s Office of Management and Budget describes its role as serving “the President of the United States in overseeing the implementation of his vision across the Executive Branch. Specifically, OMB’s mission is to assist the President in meeting his policy, budget, management and regulatory objectives and to fulfill the agency’s statutory responsibilities.”²⁰⁰

251. The White House’s Office of Science and Technology Policy describes its federal role as

¹⁹⁷ *About Commerce*, Dept. of Commerce, <https://www.commerce.gov/page/about-commerce> (to be filed with Plaintiffs’ Third Motion *in Limine*).

¹⁹⁸ *About Commerce*, Dept. of Commerce, <https://www.commerce.gov/page/about-commerce> (to be filed with Plaintiffs’ Third Motion *in Limine*).

¹⁹⁹ NOAA & CEQ, Administration of Coral Reef Resources in the Northwest Hawaiian Islands: Memorandum 193 (Sept. 15, 2000), <https://www.justice.gov/sites/default/files/olc/opinions/2000/09/31/op-olc-v024-p0183.pdf> (to be filed with Plaintiffs’ Third Motion *in Limine*).

²⁰⁰ *Office of Management and Budget*, The White House, <https://www.whitehouse.gov/omb/> (to be filed with Plaintiffs’ Third Motion *in Limine*).

“to provide the President and others within the Executive Office of the President with advice on the scientific, engineering, and technological aspects of the economy, national security, homeland security, health, foreign relations, the environment, and the technological recovery and use of resources, among other topics.”²⁰¹

252. The White House’s Office of Science and Technology Policy “leads interagency science and technology policy coordination efforts, assists the Office of Management and Budget with an annual review and analysis of Federal research and development in budgets, and serves as a source of scientific and technological analysis and judgment for the President with respect to major policies, plans, and programs of the Federal Government.”²⁰²

253. The White House’s Council on Environmental Quality (CEQ) describes its federal role as overseeing “NEPA implementation, principally through issuing guidance and interpreting regulations that implement NEPA’s procedural requirements.”²⁰³

254. The White House’s CEQ describes its role as: “[D]evelops and recommends national policies to the President that promote the improvement of environmental quality and meet the Nation’s goals.”²⁰⁴

255. The CEQ’s Office of Federal Sustainability’s federal role is “to implement Administration priorities for energy and environmental sustainability across Federal Government operations, which encompass more than 350,000 buildings, 600,000 vehicles, and \$500 billion

²⁰¹ *Office of Science and Technology Policy*, The White House, <https://www.whitehouse.gov/ostp/> (to be filed with Plaintiffs’ Third Motion *in Limine*).

²⁰² *Office of Science and Technology Policy*, The White House, <https://www.whitehouse.gov/ostp/> (to be filed with Plaintiffs’ Third Motion *in Limine*).

²⁰³ *Council on Environmental Quality*, The White House, <https://www.whitehouse.gov/ceq/> (to be filed with Plaintiffs’ Third Motion *in Limine*).

²⁰⁴ *Council on Environmental Quality*, The White House, <https://www.whitehouse.gov/ceq/> (to be filed with Plaintiffs’ Third Motion *in Limine*).

annually in purchased goods and services, including \$16 billion for energy.”²⁰⁵

256. In the 1973 report to the President entitled *The Nation’s Energy Future*, the Atomic Energy Commission made the following recommendation: “Increase domestic production of oil and natural gas as rapidly as possible.”²⁰⁶

257. In the 1973 report to the President entitled *The Nation’s Energy Future*, the Atomic Energy Commission made the following recommendation: “Increase the use of coal, first to supplement and later to replace oil and natural gas.”²⁰⁷

258. President Carter’s 1977 National Energy Plan included a directive to the “[Energy Research and Development Administration], EPA, and the Department of the Interior to undertake a major expansion of the Government’s coal research and development program. The program [was to] focus primarily on meeting environmental requirements more effectively and economically, and [sought] to expand the substitution of coal for gas and petroleum products.”²⁰⁸

259. In his 1981 *State of the Union: Annual Message to Congress*, President Carter made the following statements: “crude oil price controls will end”; “exploratory drilling activities have reached an all-time high”; “Prices for new natural gas are being decontrolled under the Natural Gas Policy Act”; “natural gas production is now at an all time high”; “Coal production and consumption incentives have been increased”; “coal production is now at its highest level in history”; “In 1979 the Interior Department held six OCS (outer continental shelf) lease sales, the

²⁰⁵ *Council on Environmental Quality*, The White House, <https://www.whitehouse.gov/ceq/> (to be filed with Plaintiffs’ Third Motion *in Limine*).

²⁰⁶ Doc. 341-155 at P00000054595.

²⁰⁷ Doc. 341-155 at P00000054595.

²⁰⁸ President Jimmy Carter, National Energy Program Fact Sheet on the President’s Program 8 (Apr. 20, 1977), <http://www.presidency.ucsb.edu/ws/print.php?pid=7373> [MIL #1 Exh. 11; Doc. 299-200; Bates P00000029998- P00000030008, at P00000030005].

greatest number ever”; and “the first general competitive federal coal lease sale in ten years will be held this month.”²⁰⁹

260. The Federal Government’s goal under the Carter Administration was to “establish a coordinated national energy policy.”²¹⁰

261. President Carter, in his 1981 State of the Union Address stated that in regards to national energy policy, made the following statements: “[o]ur progress should not be lost. We must rely on and encourage multiple forms of energy production—coal, crude oil, natural gas, solar, nuclear, synthetics—and energy conservation. The framework put in place over the last four years will enable us to do this.”²¹¹

262. In his “Sun Day” speech on May 3, 1978, President Carter made the following statement: “The Department of Energy believes that photovoltaic cells can be competitive with conventional energy sources, perhaps as early as 1990.”²¹²

263. In his 1979 *Solar Message to Congress*, President Carter “outlined the Administration’s solar program and established an ambitious national goal for the year 2000 of obtaining 20

²⁰⁹ Doc. 341-169 at P00000058496.

²¹⁰ President Jimmy Carter, The State of the Union Annual Message to the Congress (Jan. 16, 1981) <http://www.presidency.ucsb.edu/ws/print.php?pid=44541> [MIL #2 Exh. 169; Dkt 341-169; Bates P00000058491-P00000058530, at P00000058495-P00000058496].

²¹¹ President Jimmy Carter, The State of the Union Annual Message to the Congress (Jan. 16, 1981) <http://www.presidency.ucsb.edu/ws/print.php?pid=44541> [MIL #2 Exh. 169; Dkt 341-169; Bates P00000058491-P00000058530, at P00000058495-P00000058496].

²¹² President Jimmy Carter, Remarks at the Solar Energy Research Institute, Golden, Colorado, May 3, 1978 [MIL #1 Exh. 9; Dkt 299-198; Bates P00000030545- P00000030547 at P00000030546, at P00000030546].

percent of this Nation's energy from solar and renewable sources.”²¹³

264. Under the Carter Administration, the Solar Energy Research Institute was established as part of the national energy policy which might have laid the foundation for meeting “as much as one-fourth of our energy demands for solar sources by the end of this century, and perhaps more than half by the year 2020.”²¹⁴

265. In President Reagan's Message to Congress Transmitting the National Energy Plan, he made the following statement: “The National Energy Policy Plan that I am sending to you, as required by Section 801 of the Department of Energy Organization Act (Public Law 95-91), represents a break from the format and philosophy of the two National Energy Plans that preceded it.”²¹⁵

266. In President Reagan's Message to Congress Transmitting the National Energy Plan, he made the following statements: “This does not mean that the Federal government is withdrawing from all involvement in energy. It cannot and should not. The Government itself is directly responsible for lands which contain a major share of our resource wealth.”²¹⁶

267. President Reagan's 1981 National Energy Policy Plan made the following statements:

²¹³ President Jimmy Carter, The State of the Union Annual Message to the Congress (Jan. 16, 1981) <http://www.presidency.ucsb.edu/ws/print.php?pid=44541> [MIL #2; Exh. 169; Dkt 341-169; Bates P00000058491-P00000058530, at P00000058497].

²¹⁴ President Jimmy Carter, Remarks at the Solar Energy Research Institute, Golden, Colorado, May 3, 1978 [MIL #1 Exh. 9; Dkt 299-198; Bates P00000030545- P00000030547 at P00000030546]; *see also* President Jimmy Carter, The State of the Union Annual Message to the Congress (Jan. 16, 1981) <http://www.presidency.ucsb.edu/ws/print.php?pid=44541> [MIL #2 Exh. 169; Dkt 341-169; Bates P00000058491-P00000058530, at P00000058496].

²¹⁵ President Ronald Reagan, Message to the Congress Transmitting the National Energy Policy Plan (July 17, 1981), <https://www.reaganlibrary.gov/research/speeches/71781b> [MIL #2 Exh. 318; Dkt 341-318; P00000073219-P00000073221 at P00000073219].

²¹⁶ President Ronald Reagan, Message to the Congress Transmitting the National Energy Policy Plan (July 17, 1981), <https://www.reaganlibrary.gov/research/speeches/71781b> [MIL #2 Exh. 318; Dkt 341-318; P00000073219-P00000073221 at P00000073219].

“The Federal Government’s most direct impact on America’s energy future arises from its position as the steward of the Outer Continental Shelf and the 762 million acres of publicly controlled land, one-third of the land area of the United States. These lands contain an estimated 85 percent of the Nation’s oil, 40 percent of our natural gas, . . . 35 percent of our coal, . . . 80 percent of our oil shale The Federal role in national energy production is to bring these resources into the marketplace”²¹⁷

268. The 1982 Annual Report from the Reagan Administration’s Council on Environmental Quality stated that onshore and offshore fossil fuel energy resources on public lands are “in central position in its energy policy.”²¹⁸

269. In its 1982 Annual Report, President Reagan’s CEQ reported that the U.S. Geological Survey would make “an accelerated evaluation” of undiscovered fossil fuel resources for exploitation.²¹⁹

270. The 1982 Annual CEQ report made the following statement: “High priority is to be given to streamlining existing energy and mineral leasing programs; accelerating the development and implementation of new programs for leasing oil shale, tar sands, and Alaskan onshore oil and gas; increasing the availability of federal lands for exploration and development activities,

²¹⁷ Council on Environmental Quality, 12th Annual Report of the Council on Environmental Quality, 1982 [MIL #2 Exh. 170; Doc. 341-170 at P00000058531-P00000058831, P00000058688].

²¹⁸ Council on Environmental Quality, 12th Annual Report of the Council on Environmental Quality, 1982 [MIL #2 Exh. 170; Doc. 341-170 at P00000058531-P00000058831, P00000058688].

²¹⁹ Council on Environmental Quality, 12th Annual Report of the Council on Environmental Quality, 1982 [MIL #2 Exh. 170; Doc. 341-170 at P00000058531-P00000058831, P00000058688].

particularly for oil and gas.”²²⁰

271. Between 1954 and 1980, the federal government had never offered for lease more than 7.2 million acres of offshore land for oil and gas development.²²¹

272. By President Reagan’s third year in office, the number of acres offered for lease surpassed 119 million acres and by his fourth year, 154 million acres, a 21-fold increase from the previous peak in acres offered for lease.²²²

273. A March 16, 1987 letter from DOE Secretary John Herrington to President Reagan contained the following statement: “Much has already been done during this Administration to strengthen the domestic oil industry and remove impediments to the exploration for oil and gas. With your leadership, Federal price and allocation controls on oil have been eliminated and the Economic Regulatory Administration has been sharply reduced. Needed oil and gas tax incentives like the treatment of intangible drilling costs were preserved in the tax reform bill. In the past year, we’ve won approval of two Federal Energy Regulatory Commission orders, Orders 436 and 451, that should move the natural gas industry much closer to a market base. The Securities and Exchange Commission, with our persuasion, retained full-cost accounting provisions that are vital to independent petroleum producers.”²²³

²²⁰ Council on Environmental Quality, 12th Annual Report of the Council on Environmental Quality, 1982 [MIL #2 Exh. 170; Doc. 341-170 at P00000058531-P00000058831, P00000058688].

²²¹ U.S. Dep’t of Interior, Minerals Management Service, Federal Offshore Statistics: 1995, U.S. Department of Interior, Table 3 (1997) [MIL #2 Exh. 320; Doc. 341-320; P00000073640-P00000073755 at P00000073659].

²²² U.S. Dep’t of Interior, Minerals Management Service, Federal Offshore Statistics: 1995, U.S. Department of Interior, Table 3 (1997) [MIL #2 Exh. 320; Doc. 341-320; P00000073640-P00000073755 at P00000073659].

²²³ John Herrington, DOE Secretary, Letter to the President, March 16, 1987 [MIL #2 Exh. 181; Doc. 341-181; P00000059830-P00000059859 at P00000059832].

274. In a letter to President Reagan dated March 16, 1987, Secretary of Energy John Herrington made the following statements: “Much has already been done during this Administration to strengthen the domestic oil industry and remove impediments to the exploration for oil and gas. With your leadership, Federal price and allocation controls on oil have been eliminated and Economic Regulatory Administration has been sharply reduced. Needed oil and gas tax incentives like the treatment of intangible drilling costs were preserved in the tax reform bill. In the past year, we've won approval of two Federal Energy Regulatory Commission order, Orders 436 and 451, that should move the natural gas industry much closer to a market base. The Securities and Exchange Commission, with our persuasion, retained full-cost accounting provisions that are vital to independent petroleum producers. Government regulations that would have forced the capping of stripper wells on Federal lands were lifted. Since you took office, the Strategic Petroleum Reserve has been increased five-fold to more than 516 million barrels. We have also worked with our allies to expand their strategic stocks, recognizing that energy gains by this Nation can be lost unless complementary policies are pursued overseas.”²²⁴

275. Upon signing the Natural Gas Wellhead Decontrol Act, President George H.W. Bush made the following statements: “[T]oday’s legislation represents the bipartisan attainment of the administration’s first major energy initiative: the elimination of an entire system of artificial price controls for one of America’s cleanest energy resources. And this measure reflects a strong bipartisan belief that eliminating price controls will help this nation take full advantage of our plentiful domestic resources.”²²⁵

²²⁴ Doc. 341-181 at P00000059832.

²²⁵ President George H.W. Bush, Remarks on Signing the Natural Gas Wellhead Decontrol Act of 1989 (Jul. 26, 1989) [MIL #2 Exh. 195; Doc. 341-195; Bates P00000060674-P00000060675 at P00000060674].

276. Upon signing the Natural Gas Wellhead Decontrol Act, President George H.W. Bush made the following statements: “[I]ndustry and the Department of Energy are responding to this opportunity [of U.S. natural gas reserves] with imagination, seeking to tap new sources of clean-burning natural gas and then developing new uses, like powering cars and buses. With prices set by market forces and improvements in gas exploration production technologies, natural gas can help power this nation well into the next century.”²²⁶

277. In 1990, the Government Accountability Office made the following statements: “President [George H.W. Bush] announced in February 1989 that he would issue an executive order on global climate change that would clearly define responsibility of federal departments and agencies, as well as establishing effective coordination mechanisms. However, as of November 1989, the order had not been issued and its status was uncertain. Agency officials told us that they had not received clear guidance to direct the course of climate change activity.”²²⁷

278. The Department of Energy’s 1991 *National Energy Strategy* called for opening the Arctic National Wildlife Refuge and other areas of the Outer Continental Shelf to oil production, to “implement oil and gas tax incentives,” to “deregulate pipeline sales rates,” and to “increase production of California Heavy Oil.”²²⁸

279. On October 24, 1992, President Bush signed the Energy Policy Act (EPACT) of 1992, to fulfill the National Energy Strategy goal to “increase domestic oil and petroleum product

²²⁶ President George H.W. Bush, Remarks on Signing the Natural Gas Wellhead Decontrol Act of 1989 (Jul. 26, 1989) [MIL #2 Exh. 195; Doc. 341-195; Bates P00000060674-P00000060675 at P00000060674].

²²⁷ U.S. Gov’t Accountability Office, Global Warming. Administration Approach Cautious Pending Validation of Threat 17 (1990), <https://www.gao.gov/assets/150/148577.pdf>. [MIL #1 Exh. 21; Doc. 299-210; Bates P00000039990- P00000040036, at P00000040007].

²²⁸ Dep’t of Energy, National Energy Strategy: Powerful Ideas for America 10–11 (1991) [MIL #1 Exh. 20; Doc. 299-209; Bates P00000033222- P00000033357, at P00000033229].

supplies.”²²⁹

280. Provisions from the Bush Administration’s National Energy Strategy were incorporated into the National Energy Policy Act of 1992 including expedited import or export applications for natural gas, financial incentives to oil and gas drillers, funding for the research and development of new “clean coal” and natural gas technologies, and promises to export fossil fuel technologies to other nations.²³⁰

281. In 1993, President Bill Clinton directed the Department of Energy “to work with the Federal Energy Regulatory Commission (FERC) to continue to facilitate the implementation of reforms that will increase the availability and use of natural gas.”²³¹

282. It was the Clinton Administration’s policy to provide production incentives to domestic oil and gas production through “preferential tax treatment,” revising royalty rates, and export restriction exemptions.²³²

283. The Clinton Administration continued the Department of Energy policy to promote research and develop technology to enhance extraction and production of fossil fuel based energy through investment and incentives including “DOE-sponsored field tests” which “demonstrated commercial feasibility” of hydraulic fracturing in the United States.²³³

²²⁹ U.S. Dep’t of Energy, National Energy Strategy (February 1991) [MIL #1; Doc. 299-209; Bates P00000033222- P00000033357, P00000033229].

²³⁰ Energy Policy Act of 1992 [MIL #2 Exh. 277; Doc. 341-277; Bates P00000066805- P00000067161 at P00000066896, P00000067006, P00000067031].

²³¹ William J. Clinton & Albert Gore, Jr., The Climate Change Action Plan 20 (1993), <http://hdl.handle.net/2027/uc1.31822033838525> [MIL #1 Exh. 28; Doc. 299-217; Bates P00000039000- P00000039142, at P00000039032].

²³² Domestic Policy Council, Domestic Oil and Gas Initiatives (1994) [MIL #2 Exh. 223; Doc. 341-223; Bates P00000063711-P00000063824].

²³³ U.S. Dep’t of Energy, Office of Fossil Energy, Environmental Benefits of Advanced Oil and Gas Exploration and Production Technology [MIL #1 Exh. 31; Doc. 299-220; Bates P00000034394- P00000034561 at P00000034482].

284. In a 1999 report, the Department of Energy made the following statements: “With commitment to a shared vision, with collaboration, and with continued private and public investments, the oil and gas industry can continue to deliver essential energy resources and protect the environment, for ourselves and for the generations to come.”²³⁴

285. In May 2001, the National Energy Policy Development Group (NEPD) released a report that made the following statements: “A primary goal of the National Energy Policy is to add supply from diverse sources. This means domestic oil, gas, and coal. It also means hydropower and nuclear power. And it means making greater use of non-hydro renewable sources now available.”²³⁵

286. In May 2001, the National Energy Policy Development Group (NEPD) released a report that made the following statements: “Currently, the U.S. has enough coal to last for another 250 years.”²³⁶

287. In the May 2001 *Report of the National Energy Policy Development Group*, the NEPD made the following recommendation to President George W. Bush: “direct the Secretary of the Interior to examine land status and lease stipulation impediments to federal oil and gas leasing, and review and modify those where opportunities exist.”²³⁷

288. In the May 2001 *Report of the National Energy Policy Development Group*, the NEPD

²³⁴ Dep’t of Energy, DOE-FE-0385, Environmental Benefits of Advanced Oil and Gas Exploration and Production Technology 2 (1999). [MIL #1 Exh. 37; Doc. 299-220; Bates P00000035635- P00000035744, at P00000034396].

²³⁵ National Energy Policy, Report of the National Energy Policy Development Group (May 2001) [MIL #1 Exh. 33, Doc. 299-222; Bates P00000034562- P00000034731 at P00000034573].

²³⁶ National Energy Policy, Report of the National Energy Policy Development Group (May 2001) [MIL #1 Exh. 33, Doc. 299-222; Bates P00000034562- P00000034731 at P00000034573].

²³⁷ National Energy Policy, Report of the National Energy Policy Development Group (May 2001) [MIL #1 Exh. 33, Doc. 299-222; Bates P00000034562- P00000034731 at P00000034636].

made the following recommendation to President George W. Bush: “direct the Secretary of the Interior to consider economic incentives for environmentally sound offshore oil and gas development where warranted by specific circumstances: explore opportunities for royalty reductions, consistent with ensuring a fair return to the public where warranted for enhanced oil and gas recovery; for reduction of risk associated with production in frontier areas or deep gas formations; and for development of small fields that would otherwise be uneconomic.”²³⁸

289. In his Statement of Administration Policy delivered on June 14, 2005, George W. Bush made the following statement: “increasing the production of traditional energy resources on the Outer Continental Shelf (OCS), Federal onshore lands, and Indian lands, [is] consistent with the National Energy Policy.”²³⁹

290. In his Statement of Administration Policy delivered on June 14, 2005, George W. Bush made the following statement: “The Administration would oppose amendments to set a national renewable portfolio standard (RPS) on power generation and believes these standards are best left to the States.”²⁴⁰

291. A September 2005 memorandum to President George W. Bush written by Keith Hennessey and Bryan Hannegan contained the following statements: “[y]our advisors are developing options to: 1. increase refining capacity; 2. address natural gas shortages, in both the

²³⁸ National Energy Policy, Report of the National Energy Policy Development Group (May 2001) [MIL #1 Exh. 33, Doc. 299-222; Bates P00000034562- P00000034731 at P00000034636].

²³⁹ George W. Bush, Statement of Administration Policy: H.R. 6 - Energy Policy Act of 2005 (June 14, 2005) [MIL #2 Exh. 341; Doc. 341-341; Bates P00000073848-P00000073850, at P00000073848-P00000073849].

²⁴⁰ George W. Bush, Statement of Administration Policy: H.R. 6 - Energy Policy Act of 2005 (June 14, 2005) [MIL #2 Exh. 341; Doc. 341-341; Bates P00000073848-P00000073850, at P00000073848-P00000073848].

short and long term; and 3. increase oil and natural gas production.”²⁴¹

292. In 2007, the U.S. House of Representatives Committee on Oversight and Government Reform made the following statements: “the [George W.] Bush Administration has engaged in a systematic effort to manipulate climate change science and mislead policymakers and the public about the dangers of global warming.”²⁴²

293. In 2007, the U.S. House of Representatives Committee on Oversight and Government Reform made the following statements: “CEQ Chief of Staff Phil Cooney and other CEQ officials made at least 294 edits to the Administration’s Strategic Plan of the Climate Change Science Program to exaggerate or emphasize scientific uncertainties or to deemphasize or diminish the importance of the human role in global warming.”²⁴³

294. In his January 24, 2012 State of the Union Address at the U.S. Capitol, Washington D.C., President Obama made the following statements: “Over the last three years, we’ve opened millions of new acres for oil and gas exploration, and tonight, I’m directing my administration to open more than 75 percent of our potential offshore oil and gas resources. Right now — right now — American oil production is the highest that it’s been in eight years.”²⁴⁴

²⁴¹ Keith Hennessey and Bryan Hannegan, Memorandum to the President, Energy Policy – Interim Report (Sept. 30, 2005) [MIL #2 Exh. 256; Doc. 341-256; Bates P00000065422-P00000065503 at P00000065423].

²⁴² U.S. House of Representatives Committee on Oversight and Government Reform, Political Interference with Climate Change Science Under the Bush Administration, at i, ii (2007), <https://www.hsdl.org/?view&did=481710> [MIL #1 Exh. 34; Doc. 299-223; Bates P00000034736- P00000034773, at P00000034738, P00000034739].

²⁴³ U.S. House of Representatives Committee on Oversight and Government Reform, Political Interference with Climate Change Science Under the Bush Administration, at i, ii (2007), <https://www.hsdl.org/?view&did=481710> [MIL #1 Exh. 34; Doc. 299-223; Bates P00000034736- P00000034773, at P00000034738, P00000034739].

²⁴⁴ President Barack Obama, Remarks by the President in State of the Union Address (Jan. 24, 2012), <https://obamawhitehouse.archives.gov/the-press-office/2012/01/24/remarks-president->

295. In his January 24, 2012 State of the Union Address at the U.S. Capitol, Washington D.C., President Obama made the following statements: “We have a supply of natural gas that can last America nearly 100 years. And my administration will take every possible action to safely develop this energy.”²⁴⁵

296. On March 22, 2012, in his remarks on American-Made Energy at Cushing Pipe Yard in Cushing, Oklahoma, President Obama made the following statements: “Over the last three years, I’ve directed my administration to open up millions of acres for gas and oil exploration across 23 different states. We’re opening up more than 75 percent of our potential oil resources offshore. We’ve quadrupled the number of operating rigs to a record high. We’ve added enough new oil and gas pipeline to encircle the Earth, and then some.”²⁴⁶

297. On March 22, 2012, in his remarks on American-Made Energy at Cushing Pipe Yard in Cushing, Oklahoma, President Obama made the following statements: “In fact, the problem in a place like Cushing is that we’re actually producing so much oil and gas in places like North Dakota and Colorado that we don’t have enough pipeline capacity to transport all of it to where it needs to go – both to refineries, and then, eventually, all across the country and around the world.”²⁴⁷

state-union-address [MIL #1 Exh. 377; Doc. 299-181; Bates P00000035022- P00000035043, at P00000035031].

²⁴⁵ President Barack Obama, Remarks by the President in State of the Union Address (Jan. 24, 2012), <https://obamawhitehouse.archives.gov/the-press-office/2012/01/24/remarks-president-state-union-address> [MIL #1 Exh. 377; Doc. 299-181; Bates P00000035022- P00000035043, at P00000035031].

²⁴⁶ President Barack Obama, Remarks by the President on American-Made Energy (Mar. 22, 2012), <https://obamawhitehouse.archives.gov/the-press-office/2012/03/22/remarks-president-american-made-energy> [MIL #1 Exh. 378; Doc. 299-182; Bates P00000037011- P00000037015, at P00000037012].

²⁴⁷ President Barack Obama, Remarks by the President on American-Made Energy (Mar. 22, 2012), <https://obamawhitehouse.archives.gov/the-press-office/2012/03/22/remarks-president-american-made-energy>

298. In the July 18, 2014 report *Federal MultiAgency Collaboration on Unconventional Oil and Gas Research: A Strategy for Research & Development*, the Department of Energy, Department of Interior, and EPA made the following statement: “safely, responsibly, and efficiently developing unconventional domestic oil and gas resources plays an important role in our Nation’s energy future.”²⁴⁸

299. A 2014 Congressional Research Service report, *U.S. Crude Oil Export Policy: Background and Considerations*, made the following statement: “[i]n August 2014, approximately 4.1 million barrels per day (bbl/d) of petroleum products, NGLs, and other liquids were exported from the United States—up from an average of nearly 1.4 million bbl/d in 2007.”²⁴⁹

300. In his 2013 State of the Union address, President Obama made the following statements: “[T]he natural gas boom has led to cleaner power and greater energy independence. We need to encourage that. And that’s why my administration will keep cutting red tape and speeding up new oil and gas permits.”²⁵⁰

301. A 2017 Department of Energy report, *Transforming the Nation’s Electricity System: the*

american-made-energy [MIL #1 Exh. 378; Doc. 299-182; Bates P00000037011- P00000037015, at P00000037012].

²⁴⁸ U.S. Dep’t of Energy, U.S. Dep’t of Interior & U.S. EPA, *Federal MultiAgency Collaboration on Unconventional Oil and Gas Research: A Strategy for Research & Development 2* (2014), https://www.energy.gov/sites/prod/files/2017/04/f34/Multiagency_UOG_Research_Strategy.pdf. [MIL #1 Exh. 95; Doc. 270-57; Bates P00000011180–P0000001119, at P00000011182].

²⁴⁹ Congressional Research Service, *U.S. Crude Oil Export Policy: Background and Considerations 2* (Dec. 31, 2014) [MIL #2 Exh. 299; Doc. 341-299; Bates P00000070163-P00000070207 at P00000070169].

²⁵⁰ Barack Obama, Remarks by the President in the State of the Union Address (February 12, 2013), <https://obamawhitehouse.archives.gov/the-press-office/2013/02/12/remarks-president-state-union-address> [MIL #2 Exh. 346; Doc. 341-346; Bates P00000073875-P00000073891, at P00000073881].

Second Installation of the Quadrennial Energy Review, contained the following statement: “A sustained, 40-year Federal policy commitment has enabled a robust, global oil market; a diversity of petroleum suppliers; the world’s largest strategic oil reserve; international mechanisms for concerted action in the event of disruptions; increased domestic oil production; a shift away from oil-fired power generation; more-efficient vehicles; and a host of other benefits.”²⁵¹

302. Defendants permit, authorize, and subsidize fossil fuel extraction, development, consumption and exportation. Answer ¶ 7.

303. Many of the activities the Department of the Interior permits on public lands result in emission of CO₂ into the atmosphere. Answer ¶ 112.

304. The United States has more coal deposits available than any other fossil fuel resource within its borders and, as of 2015, has 28% of the world’s coal reserves. Answer ¶ 166.

305. The Department of the Interior, through the Bureau of Ocean Energy Management (BOEM), leases the Outer Continental Shelf, the submerged lands, subsoil, and seabed, lying between the seaward extent of the jurisdiction of the States and the seaward extent of Federal jurisdiction, for oil and gas development. Answer ¶ 111.

306. The Department of the Interior manages one-fifth of our nation’s land, including forests and grazing lands, thirty-five thousand miles of coastline, and 1.76 billion acres of the Outer Continental Shelf. Answer ¶ 109.

307. The Department of the Interior, through the Bureau of Land Management (BLM), leases

²⁵¹ U.S. Department of Energy, *Transforming the Nation’s Electricity System: the Second Installation of the Quadrennial Energy Review*, Ch. I, January 2017, at 1-31. [MIL #2 Exh. 304; Doc. 341-304; Bates P00000070661-P00000070710, at P00000070691].

minerals and manages oil and gas development activities on over 570 million acres of federal lands, as well as on private lands where the federal government retains mineral rights. Answer ¶ 110.

308. The Department of the Interior, through the BLM, oversees approximately 700 million subsurface acres of the federal mineral estate. Answer ¶ 168.

309. As of October 1, 2015, there were 32,193,369 acres of federal land under lease in 32 states. Answer ¶ 168.

310. Of the 700 million acres of the federal government's subsurface mineral estate that the Department of the Interior manages, about 570 million acres are available for coal leasing.²⁵²

311. The Department of Interior manages, through the BLM, 248.2 million surface and subsurface acres of federal land.²⁵³

312. The Department of Interior, through the FWS, manages 89.1 million acres of federal land.²⁵⁴

²⁵² *Coal Data*, Bureau of Land Mgmt., <https://www.blm.gov/programs/energy-and-minerals/coal/coal-data> (last visited Mar. 6, 2018). [MIL #1 Exh. 205; Doc. 299-9; Bates P00000024595]; *Coal*, Bureau of Land Mgmt., <https://www.blm.gov/programs/energy-and-minerals/coal> (last visited Mar. 6, 2018). [MIL #1 Exh. 204; Doc. 299-8; Bates P00000024895- P00000024899, at P00000024895]; U.S. Dep't of the Interior, Bureau of Land Mgmt., *Public Land Statistics 2015*, at 7–8 (2016), <https://www.blm.gov/sites/blm.gov/files/documents/files/Public%20Land%20Statistics2015%20%281%29.pdf>. [MIL #1 Exh. 192; Doc. 270-154; Bates P00000024610- P00000024885, at P00000024626- P00000024627].

²⁵³ U.S. Dep't of the Interior, Bureau of Land Mgmt., *Public Land Statistics 2015*, at 7–8 (2016), <https://www.blm.gov/sites/blm.gov/files/documents/files/Public%20Land%20Statistics2015%20%281%29.pdf>. [MIL #1 Exh. 192; Doc. 270-154; Bates P00000024610- P00000024885, at P00000024626].

²⁵⁴ Carol Hardy Vincent et al., Cong. Research Serv., R42346, *Federal Land Ownership: Overview and Data 4–5* (2017), <https://fas.org/sgp/crs/misc/R42346.pdf>. [MIL #1 Exh. 191/193; Doc. 270-155; Bates P00000024557- P00000024584, at P00000024558].

313. As of 2016, about 113 million acres of onshore federal lands are open and accessible for oil and gas development.²⁵⁵

314. As of September 30, 2014, the Department of Defense, excluding the Army Corps of Engineers, administers 11.4 million acres of land in the United States, which constitutes about 2% of all federal land.²⁵⁶

315. The Department of Agriculture provides assistance in managing the nation's 1.3 billion acres of farm, ranch, and private forest lands through public and private partnerships.²⁵⁷

316. The Department of Agriculture, through the USFS, manages more than 35 million acres of designated wilderness areas.²⁵⁸

317. The Department of Agriculture manages 193 million acres of national forests and national grasslands, comprising the national forest system.²⁵⁹

²⁵⁵ Marc Humphries, Cong. Research Serv., R42432, U.S. Crude Oil and Natural Gas Production in Federal and Nonfederal Areas 6 (2016), <https://fas.org/sgp/crs/misc/R42432.pdf>. [MIL #1 Exh. 209; Doc. 299-13; Bates P00000024096- P00000024109, at P00000024104].

²⁵⁶ Congressional Review Service, Federal Land Ownership: Overview & Data 1 (March 3, 2017), <https://fas.org/sgp/crs/misc/R42346.pdf>. [MIL #1 Exh. 269; Doc. 299-73; Bates P00000019626- P00000019653, at P00000019629].

²⁵⁷ Jane A. Leggett, Cong. Research Serv., R43915, Climate Change Adaptation by Federal Agencies: An Analysis of Plans and Issues for Congress 34 (2015), <http://nationalaglawcenter.org/wp-content/uploads/assets/crs/R43915.pdf>. [MIL #1 Exh. 39; Doc. 270-1; Bates P00000004358- P00000004461, at P00000004396].

²⁵⁸ U.S. Dep't of Agric., Forest Serv., FS-957b, National Roadmap for Responding to Climate Change 6 (2011), <https://www.fs.fed.us/climatechange/pdf/Roadmapfinal.pdf>. [MIL #1 Exh. 47; Doc. 270-9; Bates P00000000986- P00000001017, at P00000000993].

²⁵⁹ U.S. Dep't of Agric., Forest Serv., *The U.S. Forest Service – An Overview* 9 (2008), https://www.fs.fed.us/sites/default/files/media/types/publication/field_pdf/USFS-overview0106MJS.pdf. [MIL #1 Exh. 42; Doc. 270-4; Bates P00000005071- P00000005122, at P00000005084]; U.S. Dep't of Agric., Forest Serv., FS-383, Land Areas of the National Forest System 1 (2012), https://www.fs.fed.us/land/staff/lar/LAR2011/LAR2011_Book_A5.pdf. [MIL #1 Exh. 41; Doc. 270-3; Bates P00000001268- P00000001532, at P00000001277]; Carol Hardy Vincent et al., Cong. Research Serv., R42346, Federal Land Ownership: Overview and Data 4–5 (2017),

318. More than 5 million acres of national forest system lands are leased for oil, gas, coal, and phosphate development.²⁶⁰

319. The Department of Agriculture “[s]hares responsibility, working in concert with State and local agents, for the stewardship of about 500 million acres of non-Federal rural and urban forests.”²⁶¹

320. The Department of Transportation’s Pipeline and Hazardous Materials Safety Administration (PHMSA) oversees 2.6 million miles of pipelines transporting fossil fuels in the U.S.²⁶²

321. As of 2015, the Department of the Interior, through the BOEM, was administering more than 6,000 active oil and gas leases covering nearly 33 million Outer Continental Shelf acres that are owned and managed by the Federal Government. Answer ¶ 111.

322. Since 1985, the Department of the Interior, through BLM, has issued between 1,486 to 6,617 permits annually to drill for oil and gas on federal lands. Answer ¶ 170.

323. Between 2003 and 2015, BLM has consistently approved between 77 and 91 percent of the applications for permits to drill that it has processed. Answer ¶ 170.

<https://fas.org/sgp/crs/misc/R42346.pdf>. [MIL #1 Exh. 43/191/193/269; Doc. 270-5;; Bates P00000005006- P00000005033, P00000005012].

²⁶⁰ *Welcome to Minerals & Geology Management (MGM)*, U.S. Dep’t of Agric., Forest Serv., <https://www.fs.fed.us/geology/index.html> (last visited Mar. 10, 2018). [MIL #1 Exh. 73; Doc. 270-35; Bates P00000007227- P00000007229].

²⁶¹ U.S. Dep’t of Agric., Forest Serv., *The U.S. Forest Service – An Overview* 9 (2008), https://www.fs.fed.us/sites/default/files/media/types/publication/field_pdf/USFS-overview0106MJS.pdf. [MIL #1 Exh. 42; Doc. 270-4; Bates P00000005071- P00000005122, at P00000005076].

²⁶² Gas Pipeline Miles by System Type – 2017, PHMSA, <https://hip.phmsa.dot.gov/> (last visited Apr. 25, 2018) (access through search in Pipeline Data Mart); General Pipeline FAQs, PHMSA, <https://www.phmsa.dot.gov/faqs/general-pipeline-faqs> (last visited Apr. 25, 2018). [MIL #1 Exh. 168; Doc. 270-130; Bates P00000028374].

324. Between January 1990 and 2015, the Department of the Interior, through BLM, leased 107 coal tracts, and associated coal production and revenues have grown. Answer ¶ 166.

325. In 1985, there were 18,849 recorded producing oil and gas leases issued by Defendant Interior through BLM. By 2014, there were 23,657 recorded federal producing oil and gas leases issued by the Department of the Interior through BLM. Answer ¶ 167.

326. As of June 2014, the Department of the Interior, through BLM, had approximately 46,138 oil and gas leases in effect in Fiscal Year 2014, containing a total of 94,778 producible and service well bores. Answer ¶ 168.

327. In FY 2015, fossil fuel energy produced on federal lands managed by the Department of the Interior included 782 million barrels of crude oil, five trillion cubic feet of natural gas, and 421 million tons of coal.²⁶³

328. Under leases administered by the Department of the Interior's Bureau of Indian Affairs, in 2014 a total of 968 trillion BTU of crude oil and lease condensate, natural gas plant liquids, natural gas, and coal were produced in Indian Country.²⁶⁴

329. From 1947–1952, the Department of the Interior authorized the production of 1,656,779 barrels of oil and 21,345,971 MCF of natural gas from the Outer Continental Shelf.²⁶⁵

²⁶³ Interior Department Supported \$106 Billion in Recreation, Conservation, Water and Renewable Energy Investments, Supporting More than 860,000 Jobs in FY 2015, U.S. Dep't of the Interior (June 17, 2016), <https://www.doi.gov/pressreleases/interior-department-supported106-billion-recreation-conservation-water-and-renewable>. [MIL #1 Exh. 212; Doc. 299-16; Bates P00000024900- P00000024906, at P00000024902].

²⁶⁴ U.S. Energy Info. Admin., Sales of Fossil Fuels Produced from Federal and Indian Lands, FY 2003 through FY 2014, at 3 (2015), <https://www.eia.gov/analysis/requests/federallands/pdf/eiafederallandsales.pdf>. [MIL #1 Exh. 214; Doc. 299-18; Bates P00000024043- P00000024078, at P00000024049].

²⁶⁵ U.S. Dep't of the Interior, Minerals Mgmt. Serv., Gulf of Mex. Region, Annual Summary of Production for Entire Region 1947-1952 (1997), <https://www.data.boem.gov/Production/Files/Region%20Production%20by%20Year%201947->

330. From 1953–1958, the Department of the Interior authorized the production of 46,085,044 barrels of oil and 499,932,002 MCF of natural gas from the Outer Continental Shelf.²⁶⁶

331. From 1959–1964, the Department of the Interior authorized the production of 410,296,529 barrels of oil and 2,496,795,334 MCF of natural gas from the Outer Continental Shelf.²⁶⁷

332. From 1965–1970, the Department of the Interior authorized the production of 1,396,213,129 barrels of oil and 8,971,713,029 MCF of natural gas from the Outer Continental Shelf.²⁶⁸

333. From 1971–1976, the Department of the Interior authorized the production of 2,063,615,481 barrels of oil and 19,445,973,940 MCF of natural gas from the Outer Continental Shelf.²⁶⁹

334. From 1977–1982, the Department of the Interior authorized the production of 1,636,886,336 barrels of oil and 26,999,283,161 MCF of natural gas from the Outer Continental

1952.pdf. [MIL #1 Exh. 226; Doc. 299-30; Bates P00000024894].

²⁶⁶ U.S. Dep’t of the Interior, Minerals Mgmt. Serv., Gulf of Mex. Region, Annual Summary of Production for Entire Region 1953-1958 (1997), <https://www.data.boem.gov/Production/Files/Region%20Production%20by%20Year%201953-1958.pdf>. [MIL #1 Exh. 225; Doc. 299-29; Bates P00000024893].

²⁶⁷ U.S. Dep’t of the Interior, Minerals Mgmt. Serv., Gulf of Mex. Region, Annual Summary of Production for Entire Region 1959-1964 (1997), <https://www.data.boem.gov/Production/Files/Region%20Production%20by%20Year%201959-1964.pdf>. [MIL #1 Exh. 224; Doc. 299-28; Bates P00000024892].

²⁶⁸ U.S. Dep’t of the Interior, Minerals Mgmt. Serv., Gulf of Mex. Region, Annual Summary of Production for Entire Region 1965-1970 (1997), <https://www.data.boem.gov/Production/Files/Region%20Production%20by%20Year%201965-1970.pdf>. [MIL #1 Exh. 223; Doc. 299-27; Bates P00000024891].

²⁶⁹ U.S. Dep’t of the Interior, Minerals Mgmt. Serv., Gulf of Mex. Region, Annual Summary of Production for Entire Region 1971-1976 (1997), <https://www.data.boem.gov/Production/Files/Region%20Production%20by%20Year%201971-1976.pdf>. [MIL #1 Exh. 222; Doc. 299-26; Bates P00000024890].

Shelf.²⁷⁰

335. From 1983–1988, the Department of the Interior authorized the production of 2,009,490,768 barrels of oil and 25,842,165,144 MCF of natural gas from the Outer Continental Shelf.²⁷¹

336. From 1989–1994, the Department of the Interior authorized the production of 1,777,177,894 barrels of oil and 28,358,574,313 MCF of natural gas from the Outer Continental Shelf.²⁷²

337. From 1995–1999, the Department of the Interior authorized the production of 2,064,816,651 barrels of oil and 25,092,411,136 MCF of natural gas from the Outer Continental Shelf.²⁷³

338. From 2000–2004, the Department of the Interior authorized the production of 2,743,825,357 barrels of oil and 22,952,721,027 MCF of natural gas from the Outer Continental Shelf.²⁷⁴

²⁷⁰ U.S. Dep’t of the Interior, Minerals Mgmt. Serv., Gulf of Mex. Region, Annual Summary of Production for Entire Region 1977-1982 (1997), <https://www.data.boem.gov/Production/Files/Region%20Production%20by%20Year%201977-1982.pdf>. [MIL #1 Exh. 221; Doc. 299-25; Bates P00000024889].

²⁷¹ U.S. Dep’t of the Interior, Minerals Mgmt. Serv., Gulf of Mex. Region, Annual Summary of Production for Entire Region 1983-1988 (1997), <https://www.data.boem.gov/Production/Files/Region%20Production%20by%20Year%201983-1988.pdf>. [MIL #1 Exh. 220; Doc. 299-24; Bates P00000024888].

²⁷² U.S. Dep’t of the Interior, Minerals Mgmt. Serv., Gulf of Mex. Region, Annual Summary of Production for Entire Region 1989-1994 (1997), <https://www.data.boem.gov/Production/Files/Region%20Production%20by%20Year%201989-1994.pdf>. [MIL #1 Exh. 219; Doc. 299-23; Bates P00000024887].

²⁷³ U.S. Dep’t of the Interior, Minerals Mgmt. Serv., Gulf of Mex. Region, Annual Summary of Production for Entire Region 1995-1999 (2006), <https://www.data.boem.gov/Production/Files/Annual%20Production%201995%20-%201999.pdf>. [MIL #1 Exh. 218; Doc. 299-22; Bates P00000020450].

²⁷⁴ U.S. Dep’t of the Interior, Minerals Mgmt. Serv., Gulf of Mex. Region, Annual Summary of Production for Entire Region 2000-2004 (2006),

339. From 2005–2017, the Department of the Interior, through the BOEM, authorized the production of 6,628,902,538 barrels of oil from the Outer Continental Shelf.²⁷⁵

340. As of 2000, approximately 14% of the national wildlife refuge system lands, in 22 different states, have or have had oil or gas production on the land.²⁷⁶

341. Between 2009 and 2015, oil and gas producers on federal public and Indian lands vented, flared, and leaked approximately 462 billion cubic feet of natural gas.²⁷⁷

342. In 2010, 16.7 million barrels of oil and 194 million cubic feet of natural gas were produced from almost 3,200 wells on federal lands managed by the Department of Agriculture.²⁷⁸

343. In 2014, 81 Bcf of natural gas was flared and 30 Bcf of natural gas was vented from producing operations on federal lands.²⁷⁹

<https://www.data.boem.gov/Production/Files/Annual%20Production%202000%20-%202004.pdf>. [MIL #1 Exh. 217; Doc. 299-21; Bates P00000020449].

²⁷⁵ U.S. Dep’t of the Interior, Bureau of Safety & Envtl. Enforcement, Gulf of Mex. Region, Annual Summary of Production for Entire Region 2005-2018 (2018), <https://www.data.boem.gov/Production/Files/Annual%20Production%202005%20-%20Present.pdf>. [MIL #1 Exh. 216; Doc. 299-20; Bates P00000024886].

²⁷⁶ U.S. Gov’t Accountability Off., GAO-02-64R, Wildlife Refuge Oil and Gas Activity 1 (2001), <http://www.gao.gov/new.items/d0264r.pdf>. [MIL #1 Exh. 254; Doc. 299-58; Bates P00000020433- P00000020448, at P00000020433].

²⁷⁷ U.S. Dep’t of the Interior, Fact Sheet on Methane and Waste Prevention Rule 1 (2016), https://www.doi.gov/sites/doi.gov/files/uploads/methane_waste_prevention_rule_factsheet.pdf. [MIL #1 Exh. 256; Doc. 299-60; Bates P00000024330- P00000024333, at P00000024330].

²⁷⁸ Challenges Facing Domestic Oil and Gas Development: Review of Bureau of Land Management/U.S. Forest Service Ban On Horizontal Drilling On Federal Lands: Hearing Before the H. Subcomm on Energy & Mineral Resources & the H. Subcomm. on Conservation, Energy, & Forestry, 112th Cong. 18 (2011) (statement of Joel Holtrop, Deputy Chief, U.S. Forest Service), <https://www.gpo.gov/fdsys/pkg/CHRG-112hhrg72151/pdf/CHRG112hhrg72151.pdf>. [MIL #1 Exh. 74; Doc. 270-36; Bates P00000001180- P00000001267, at P00000001203].

²⁷⁹ U.S. Dep’t of the Interior, Bureau of Land Mgmt., Regulatory Impact Analysis for 43 CFR 3179, at 16 (2016), <https://www.regulations.gov/contentStreamer?documentId=BLM-2016-0001-9127&contentType=pdf>. [MIL #1 Exh. 257; Doc. 299-61; Bates P00000024334- P00000024500, at P00000024354].

344. In Fiscal Year 2015, 21% of the oil produced in the United States was produced on federal lands.²⁸⁰

345. As of November 2016, there were over 5,000 oil and gas wells on national wildlife refuge system lands, of which about 1,700 are active.²⁸¹

346. As of 2010, national forest lands provided 25% of the United States' coal production.²⁸²
Answer ¶ 117(a).

347. In 2014, Defendants authorized and oversaw the sale of 421 million tons of coal from federally-leased lands. Answer ¶ 165.

348. In 2015, the BLM reported that 40% of all coal produced in the United States comes from federal lands. Answer ¶ 166.

349. As of 2007, over 2 million farms exist in the United States, covering about 900 million acres.²⁸³

350. Agricultural soil management is the single greatest contributor to greenhouse gas emissions from the U.S. agricultural production sector.²⁸⁴

²⁸⁰ Marc Humphries, Cong. Research Serv., R42432, U.S. Crude Oil and Natural Gas Production in Federal and Nonfederal Areas 1 (2016), <https://fas.org/sgp/crs/misc/R42432.pdf>. [MIL #1 Exh. 211/209; Doc. 299-15; Bates P00000024096- P00000024109 at P00000024099].

²⁸¹ U.S. Fish & Wildlife Serv., Non-Federal Oil and Gas Activities on National Wildlife Refuge System Lands (2016), <https://www.fws.gov/refuges/oil-and-gas/pdfs/Oil-Gas-Fact-sheet.pdf>. [MIL #1 Exh. 255; Doc. 299-59; Bates P00000024328- P00000024329].

²⁸² *Coal*, U.S. Forest Serv., Minerals & Geology Mgmt., <https://www.fs.fed.us/geology/energyCoal.html> (last visited Mar. 10, 2018). [MIL #1 Exh. 75; Doc. 270-37; Bates P00000007192- P00000007193].

²⁸³ C.L. Walthall et al., U.S. Dep't of Agric., USDA Tech. Bulletin 1935, *Climate Change and Agriculture in the United States: Effects and Adaptation* 11 (2012), [https://www.usda.gov/oce/climate_change/effects_2012/CC%20and%20Agriculture%20Report%20\(02-04-2013\)b.pdf](https://www.usda.gov/oce/climate_change/effects_2012/CC%20and%20Agriculture%20Report%20(02-04-2013)b.pdf). [MIL #1 Exh. 62; Doc. 270-24; Bates P00000002073- P00000002265, at P00000024328].

²⁸⁴ U.S. Env't'l Protection Agency, EPA 430-R-18-003, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016*, at 5-1 (2018), <https://www.epa.gov/sites/production/files/2018->

351. The U.S. agricultural sector is the leading source of N₂O emissions in the U.S., largely as a result of soil management, commercial fertilizer and manure application, and production of nitrogen-fixing crops.²⁸⁵

352. Twenty million metric tons of carbon are currently sequestered each year in U.S. farm and grazing land soils.²⁸⁶

353. The National Resource Conservation Service states that U.S. farm and grazing soils have the potential to sequester an additional 180 million metric tons annually.²⁸⁷

354. A person may not harvest timber from federal lands without USDA authorization.²⁸⁸

355. The Department of Agriculture authorized the harvest of 525,484,148 million board feet, or approximately 1.24 trillion cubic meters, of timber from FY 1905–2016.²⁸⁹

356. From FY 1984–2017 the Department of Agriculture, through the USFS, authorized the clear cut of 3,011,086 acres of national forest system lands.²⁹⁰

01/documents/2018_complete_report.pdf. [MIL #1 Exh. 178; Doc. 270-140; Bates P00000029104- P00000029758, at P00000029460].

²⁸⁵ U.S. Env'tl Protection Agency, EPA 430-R-18-003, Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016, at 5-1 (2018), https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf. [MIL #1 Exh. 178; Doc. 270-140; Bates P00000029104- P00000029758, at P00000029201, P00000029460].

²⁸⁶ Nat. Res. Conservation Serv., Carbon Sequestration (n.d.), https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_066823.pdf. [MIL #1 Exh. 64; Doc. 270-26; Bates P00000007222- P00000007223, P00000007223].

²⁸⁷ Nat. Res. Conservation Serv., Carbon Sequestration (n.d.), https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_066823.pdf. [MIL #1 Exh. 64; Doc. 270-26; Bates P00000007222- P00000007223, P00000007223].

²⁸⁸ 36 C.F.R. §§ 223(a); 261.6(a), (b), (h).

²⁸⁹ Forest Products Cut and Sold from the National Forests and Grasslands, U.S. Dep't of Agric., Forest Serv., <https://www.fs.fed.us/forestmanagement/products/cut-sold/index.shtml> (last visited Mar. 10, 2018). [MIL #1 Exh. 45; Doc. 270-7; Bates P00000007198- P00000007200].

²⁹⁰ U.S. Dep't of Agric., Forest Serv., Historic Harvest Trends: 1984 to Present (2017), <https://www.fs.fed.us/forestmanagement/documents/harvest-trends/NFS-HarvestHistory1984-2017.pdf>. [MIL #1 Exh. 46; Doc. 270-8; Bates P00000005059- P00000005067, at P00000005067].

357. In FY 2015, over half a billion board feet of timber were harvested from federal lands and Indian Country after receiving prior authorization from the Department of the Interior.²⁹¹

358. Since the 1990s, the U.S. Forest Service's Forest Inventory and Analysis program has provided official estimates of forest carbon stocks and flows for the United States.²⁹²

359. In 2014, national forests stored 9,499 million metric tons of carbon.²⁹³

360. The Department of State leads international efforts on climate change on behalf of the Office of the President. Answer ¶ 123(a).

361. The United States has supported fossil fuel development through overseas public financing, primarily through the Export-Import Bank of the United States, an agency of the Office of the President. Answer ¶ 177.

362. The Export-Import Bank of the United States financially supports a number of coal and gas power plants. Answer ¶ 177.

363. Through the Export-Import Bank of the United States, the Office of the President

²⁹¹ Interior Department Supported \$106 Billion in Recreation, Conservation, Water and Renewable Energy Investments, Supporting More than 860,000 Jobs in FY 2015, U.S. Dep't of the Interior (June 17, 2016), <https://www.doi.gov/pressreleases/interior-department-supported106-billion-recreation-conservation-water-and-renewable>. [MIL #1 Exh. 253; Doc. 299-57; Bates P00000024900- P00000024906].

²⁹² U.S. Forest Serv., Climate Change Advisor's Office Briefing Paper: Baseline Estimates of Carbon Stocks in Forests and Harvested Wood Products for National Forest System Units (2015), <https://www.fs.fed.us/climatechange/documents/CarbonAssessmentsBriefingPaper.pdf>. [MIL #1 Exh. 50; Doc. 270-12; Bates P00000004462- P00000004464].

²⁹³ See U.S. Forest Serv., Forest Inventory and Analysis Program, Total Carbon Storage in U.S. Forests by State and Ownership Group (2014), <https://www.fia.fs.fed.us/Forest%20Carbon/methods/docs/2014/Total%20forest%20carbon20140721.xlsx>. [MIL #1 Exh. 53; Doc. 270-15; Bates P00000004497- P00000004498]; *see also* James E. Smith et al., U.S. Dep't of Agric., Forest Serv., U.S. Forest Carbon Calculation Tool: Forest-Land Carbon Stocks and Net Annual Stock Change 9 (2010), https://www.nrs.fs.fed.us/pubs/gtr/gtr_nrs13R.pdf [MIL #1 Exh. 54; Doc. 270-16; Bates P00000000794- P00000000831].

provided \$14.8 billion in commitments for 78 transactions or projects in the petroleum sector, including 49 transactions in Latin America, 14 in Africa, six in Russia/FSU, five in the Middle East, and four in Asia. Answer ¶ 177

364. In Fiscal Year 2010, the Export-Import Bank of the United States provided approximately \$3 billion in financing for the Papua New Guinea LNG Project or Papua New Guinea Liquified Natural Gas Project and \$18 million for the Sangatta Surface Coal Mine in Indonesia. Answer ¶ 177.

365. The Department of Energy's approval of up to 13,140 Bcf of natural gas exports from the proposed Jordan Cove LNG Terminal to free trade agreement nations in DOE/FE Order No. 3041 was mandated by Section 3(c) of the Natural Gas Act, 15 U.S.C. § 717b(c). Accordingly, the Department's approval did not include any environmental review or other public interest analysis, nor any opportunity for public participation in the decision-making process. Answer ¶¶ 96, 107, 193.

366. Multiple U.S. government agencies and offices, including the Department of Energy, were involved in making a deal, announced on July 31, 2017, for Pennsylvania-based Coal Energy and Resources to supply coal to Ukraine's state-owned power generation company, Centrenergy PJSC a reality.²⁹⁴

367. In July 2017, in reference to the deal between Coal Energy and Resources and Ukraine's Centrenergy PJSC, Secretary of Commerce Wilbur Ross made the following statement: "As promised during the campaign, President Trump is unshackling American energy with each day

²⁹⁴ Press Release, Secretary Ross and Secretary Perry Hail New Coal Deal with Ukraine, Dep't of Commerce (July 31, 2017 10:56 AM). [MIL #1 Exh. 101; Doc. 270-63; Bates P00000017950-P00000017955].

on the job. This has brought enormous benefit to our nation's coal communities, and will now also benefit an important international partner [Ukraine].”²⁹⁵

368. On April 16, 2018, John McCarrick, the Department of State's Acting Special Envoy and Coordinator for International Energy Affairs and David Goldwyn, Chair of the Atlantic Council's Energy Advisory Group and Senior Fellow at the Latin America Center, co-chaired a discussion with energy ministers and senior-level officials from Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, and Panama about ways to develop commercial natural gas power projects in the Central America region and the benefits of increased natural gas trade, including LNG, for regional economic development and competitiveness.²⁹⁶

369. In 1994, the Domestic Policy Council made the following statement in *Domestic Oil and Gas Incentives*: “Preferential tax treatment is the principal source of assistance provided by the federal government to the domestic oil and gas industry.”²⁹⁷

370. In 1994, the Domestic Policy Council made the following statement in *Domestic Oil and Gas Incentives*: “Tax expenditures are intended to encourage the exploration and production of domestic oil and gas.”²⁹⁸

371. The Department of the Interior has reported that from 2009–2011, the Department of the Interior, through the Office of Indian Energy and Economic Development, has assisted mineral

²⁹⁵ Secretary Ross and Secretary Perry Hail New Coal Deal with Ukraine, U.S. Dep't of Commerce (July 31, 2017), <https://www.commerce.gov/news/press-releases/2017/07/secretary-ross-and-secretary-perry-hail-new-coal-deal-ukraine>. [MIL #1 Exh. 359; Doc. 299-163; Bates P00000018174- P00000018178, at P00000018174-75].

²⁹⁶ U.S. Dep't of State, Press Releases, “Central American Senior-Level Natural Gas Policy and Investment Roundtable,” (April 16, 2018), <https://www.state.gov/r/pa/prs/ps/2018/04/280511.htm> (last visited June 5, 2018). [MIL #1 Exh. 118; Doc. 270-80; Bates P00000020417-P00000020418].

²⁹⁷ Doc. 341-223 at P00000063726.

²⁹⁸ Doc. 341-223 at P00000063726.

owners in Indian Country in the negotiation of 48 leases for oil, gas, renewable energy, and aggregate materials development on approximately 2.8 million acres.²⁹⁹

372. The National Research Council issued a report, *Energy Research at DOE: Was It Worth It? Energy Efficiency and Fossil Energy Research 1978 to 2000*, that contained the following statement: The Department of Energy “expended nearly \$1.5 billion on oil and gas production research from 1978 through 2000. Approximately one-third of the funding was to demonstrate shale oil technology at a commercial scale.”³⁰⁰

373. The Department of Energy, through its Office of Fossil Energy, manages a methane hydrate program that aims to develop the tools and technologies to allow environmentally safe methane production from arctic and domestic offshore hydrates, and is studying new ways to predict the location and concentration of subsurface methane hydrate before drilling.³⁰¹

374. The Department of the Interior, through the U.S. Geological Survey and the BOEM, has estimated there are 17.6 billion barrels of technically recoverable oil and more than 50 trillion cubic feet of technically recoverable natural gas in the National Petroleum Reserve in Alaska, the Western Beaufort Sea, adjacent State and Native lands, and State waters.³⁰²

²⁹⁹ Dep’t of the Interior, New Energy Frontier, at DH-40 (2012), https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/FY2013_BIB_DH027.pdf. [MIL #1 Exh. 215; Doc. 299-19; Bates P00000020743- P00000020756, at P00000020756].

³⁰⁰ Nat’l Research Council, *Energy Research at DOE: Was It Worth It? Energy Efficiency and Fossil Energy Research 1978 to 2000*, at 55 (2001), <https://www.nap.edu/catalog/10165/energy-research-at-doe-was-it-worth-it-energy-efficiency>. [MIL #1 Exh. 94; Doc. 270-56; Bates P00000011806–P00000012046, at P00000011877].

³⁰¹ U.S. Dep’t of Energy, Office of Fossil Energy, Science & Innovation, Methane Hydrate. [MIL #1 Exh. 98; Doc. 270-60; Bates P00000017984- P00000017987].

³⁰² New Interior Department Survey Shows Significant Increase in Recoverable Energy Resources in Federal, State and Tribal Lands and Waters in Alaska, USGS (Dec. 22, 2017), <https://www.usgs.gov/news/new-interior-department-survey-shows-significant-increaserecoverable-energy-resources-federal>. [MIL #1 Exh. 267; Doc. 299-71; Bates P00000024954- P00000024956, at P00000024954].

375. In 2008 the Department of the Interior’s U.S. Geological Survey conducted an assessment and found an estimated 85.4 trillion cubic feet of undiscovered, technically recoverable gas from natural gas hydrates on the Alaskan North Slope.³⁰³

376. In 2008, the Department of the Interior, through the U.S. Geological Survey, investigated and determined that, of the estimated gas within hydrates on the North Slope of Alaska, 56 percent occurs on federally managed lands, 39 percent on lands and offshore waters managed by the State of Alaska, and 4 percent on Native Alaskan lands.³⁰⁴

377. In 2014, Defendants Energy, Interior, and EPA issued a “Federal Multiagency Strategy” for coordinating “high priority research” to develop unconventional oil and gas, including onshore shale gas, shale oil, and tight oil resources.³⁰⁵

378. The Department of Commerce, through its International Trade Administration, developed a 2017 Upstream Oil and Gas Equipment Top Markets Report that was “designed to provide market intelligence to U.S. companies, as well as inform policy-makers on [Oil and Gas] markets where U.S. Government (USG) resources can make the biggest impact in support of increased U.S. [Oil and Gas] equipment exports.”³⁰⁶

³⁰³ Jessica Robertson, Gas Hydrates on Alaska’s North Slope, USGS (Nov. 11, 2008), <https://www.usgs.gov/media/audio/gas-hydrates-alaskas-north-slope>. [MIL #1 Exh. 265; Doc. 299-69; Bates P00000025005].

³⁰⁴ News Release: Gas Hydrates on Alaska’s North Slope Hold One of Nation’s Largest Deposits of Technically Recoverable Natural Gas, U.S. Dep’t of the Interior (Nov. 12, 2008), https://www.doi.gov/sites/doi.gov/files/archive/news/archive/08_News_Releases/111208.html. [MIL #1 Exh. 266; Doc. 299-70; Bates P00000024952- P00000024953, at P00000024953].

³⁰⁵ U.S. Dep’t of Energy, U.S. Dep’t of Interior, U.S. EPA, Federal MultiAgency Collaboration on Unconventional Oil and Gas Research: A Strategy for Research & Development 2 (July 18, 2014). [MIL #1 Exh. 99/95; Doc. 270-61/270-66; Bates P00000011180- P0000001119, at P00000011182].

³⁰⁶ *Top Markets Series: Oil and Gas Equipment*, Int’l Trade Admin. (2017), <https://www.trade.gov/topmarkets/oil-and-gas.asp>. [MIL #1 Exh. 367; Doc. 299-171; Bates P00000018160- P00000018161].

379. On May 8, 2018, the Department of Energy's Office of Fossil Energy issued a Request for Information for input on the development of small-scale, modular coal-based power plants of the future.³⁰⁷

380. The Department of Energy's approval of liquid natural gas (LNG) exports from the proposed Jordan Cove terminal in Coos Bay to nations with which there is in effect a free trade agreement required national treatment for trade in natural gas under Section 3(c) of the Natural Gas Act, and therefore did not include any environmental review or other public interest analysis by DOE. Answer ¶ 1.

381. The Department of State's Bureau of Energy Resources reviews applications for the construction, connection, operation, or maintenance of facilities for the exportation or importation of petroleum, petroleum products, coal, and other fuels (except for natural gas) at the borders of the United States.³⁰⁸

382. No offshore LNG or oil import and export port facility can legally operate without a license from the Department of Transportation's MARAD.³⁰⁹

383. As of May 2018, the U.S. Army Corps of Engineers had issued permits for at least 5,281

³⁰⁷ U.S. Dep't of Energy, Dep't of Energy Seeks Information on Small-Scale Modular Coal-Based Power Plants of the Future (May 8, 2018). [June 29 MIL Exh. 83; Doc. 270-45; Bates P00000017981- P00000017983].

³⁰⁸ U.S. Dep't of State, Bureau of Energy Resources, <https://www.state.gov/e/enr/index.htm> (last visited June 5, 2018). [MIL #1 Exh. 117; Doc. 270-79; Bates P00000020414-P00000020416, at P00000020414].

³⁰⁹ Deepwater Port Licensing Program: Welcome to the Maritime Administration's Deepwater Port Licensing for LNG and Oil Webpage, MARAD, <https://www.marad.dot.gov/ports/office-of-deepwater-ports-and-offshore-activities/> (last visited Apr. 25, 2018). [MIL #1 Exh. 189; Doc. 270-151; Bates P00000029796- P00000029797].

port facilities that process fossil fuel commodities.³¹⁰

384. The United States EIA has reported that the United States has authorized millions of barrels of crude oil to be exported from the U.S. between 1990 and 2017.³¹¹

385. Prior to December 18, 2015, a federally-issued license was required to export crude oil from the United States to all destinations, which licenses to Canada generally being approved and licenses to other countries generally being rejected. Answer ¶ 181.

386. The United States EIA has reported that in December 2015, Congress lifted the ban on crude oil exports resulting in the rapid rise of crude oil exports thereafter.³¹²

387. As of December 18, 2015, Defendants are prohibited from implementing or enforcing export controls on crude oil. A federally-issued license continues to be required for export of crude oil to sanctioned or embargoed countries or to certain prohibited end users. Answer ¶ 181.

388. In 1977, MARAD issued licenses for the Louisiana Offshore Oil Port deepwater port with a throughput capacity of 1.2 billion barrels of oil per day, the only deepwater port petroleum terminal in the United States.³¹³

389. In 1990, the United States exported approximately 39,653 thousand barrels of crude

³¹⁰ Ports and Waterways Facilities, U.S. Army Corps of Eng'rs, Navigation Data Ctr., <http://www.navigationdatacenter.us/ports/ports.htm> (last visited May 11, 2018). [MIL #1 Exh. 311; Doc. 299-115; Bates P00000037018- P00000037019].

³¹¹ U.S. Exports of Crude Oil, U.S. Energy Info. Admin., <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCREXUS1&f=A> (last updated Apr. 30, 2018). [MIL #1 Exh. 361; Doc. 299-165; Bates P00000018179- P00000018183].

³¹² U.S. Dep't of Energy, Office of Energy Efficiency & Renewable Energy, Vehicle Technologies Office, FOTW #1022, March 26, 2018: U.S. Crude Oil Exports Skyrocketed in 2016 and 2017. [MIL #1 Exh. 96; Doc. 270-58; Bates P00000017994- P00000017996].

³¹³ Deepwater Port Licensing Program: Approved Applications and Operational Facilities, MARAD, <https://www.marad.dot.gov/ports/office-of-deepwater-ports-and-offshore-activities/approved-applications-and-operational-facilities/> (last visited Apr. 25, 2018). [MIL #1 Exh. 190; Doc. 270-152; Bates P00000029798- P00000029803, at P00000029799].

oil.³¹⁴

390. In 1990, the United States exported approximately 257,994 thousand barrels of finished petroleum products.³¹⁵

391. In August 2009, the Department of State issued a presidential permit for Enbridge Energy's Alberta Clipper crude oil pipeline, which transports crude oil from the oil sands region of Alberta, Canada to oil markets in the Midwestern United States.³¹⁶

392. In 2012, the United States exported approximately 24,693 thousand barrels of crude oil.³¹⁷

393. In 2012, the United States exported approximately 954,858 thousand barrels of finished petroleum products.³¹⁸

394. In 2012, the Department of Commerce authorized the import of 3.1 billion barrels of crude oil.³¹⁹

³¹⁴ U.S. Exports of Crude Oil, U.S. Energy Info. Admin., <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCREXUS1&f=A> (last updated Apr. 30, 2018). [MIL #1 Exh. 361; Doc. 299-165; Bates P00000018179- P00000018183, at P00000018182].

³¹⁵ U.S. Exports of Finished Petroleum Products, U.S. Energy Info. Admin., <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MTPEXUS1&f=A> (last visited May 11, 2018). [MIL #1 Exh. 364; Doc. 299-168; Bates P00000018186- P00000018189, at P00000018188].

³¹⁶ Cong. Research Serv., Presidential Permits for Border Crossing Energy Facilities, at 2, <https://fas.org/sgp/crs/misc/R43261.pdf>. [MIL #1 Exh. 116; Doc. 270-78; Bates P00000020377- P00000020387, at P00000020381].

³¹⁷ Petroleum and Other Liquids: Exports, U.S. Energy Info. Admin., https://www.eia.gov/dnav/pet/pet_move_exp_dc_NUS-Z00_mbb1_a.htm (last visited May 10, 2018). [MIL #1 Exh. 362; Doc. 299-166; Bates P00000018184- P00000018185].

³¹⁸ Petroleum and Other Liquids: Exports, U.S. Energy Info. Admin., https://www.eia.gov/dnav/pet/pet_move_exp_dc_NUS-Z00_mbb1_a.htm (last visited May 10, 2018). [MIL #1 Exh. 365; Doc. 299-169; Bates P00000018184- P00000018185, at P00000018184].

³¹⁹ Cong. Research Serv., U.S. Crude Oil Exports: Licensing and Data Issues 1 (2013), https://www.energy.senate.gov/public/index.cfm/files/serve?File_id=73e6832f-9670-445b-b8c5-

395. In 2014, the 127,864 thousand barrels of crude oil exported from the United States pursuant to a license issued by the Department of Commerce's Bureau of Industry and Security was an increase from the number of barrels exported in 2013. Answer ¶ 181.

396. In 2014, the United States imported 2,680,626 thousand barrels of crude oil. Answer ¶ 181.

397. The Department of Energy has jurisdiction over import and export authorization of natural gas. Answer ¶ 182.

398. Without authorization from the Department of Energy, no person may export or import natural gas (including liquefied natural gas, compressed natural gas, compressed gas liquids, etc.) from or into the United States.³²⁰

399. The Department of Energy, through the Office of Fossil Energy, issues short-term and long-term authorizations for the import and export of natural gas. Answer ¶ 105.

400. The Department of State's Bureau of Energy Resources "leads the promotion of U.S. liquid natural gas (LNG) exports globally."³²¹

401. As of March 16, 2018, the Department of Energy had approved at least 35 Long Term Applications to export domestically produced LNG from the lower-48 states, totaling

9b254d9f5bca (memorandum to Senate Energy and Natural Resources Committee). [MIL #1 Exh. 363; Doc. 299-167; Bates P00000018046- P00000018049, at P00000018046].

³²⁰ How to Obtain Authorization to Import and/or Export Natural Gas and LNG, U.S. Dep't of Energy. [MIL #1 Exh. 84; Doc. 270-46; Bates P00000017944- P00000017947, at P00000017944].

³²¹ U.S. Dep't of State, Bureau of Energy Resources, <https://www.state.gov/e/enr/index.htm> (last visited June 5, 2018). [MIL #1 Exh. 117; Doc. 270-79; Bates P00000020414-P00000020416, at P00000020415].

approximately 31.5 billion cubic feet per day.³²²

402. Between 1995 and 2015, the United States imported 71,730 Bcf of natural gas, and exported 14,623 Bcf of natural gas. Answer ¶ 182.

403. In 2014, the Department of Energy authorized the import of 51,824 thousand barrels of natural gas plant liquids and liquefied refinery gases. Answer ¶ 182.

404. In 2014, the Department of Energy authorized the export of 257,948 thousand barrels of natural gas plant liquids and liquefied refinery gases. Answer ¶ 182.

405. In 2016, the U.S. exported 183.9 billion cubic feet of liquid natural gas through export terminals.³²³

406. In 2017, the U.S. exported approximately 706,303,241 thousand cubic feet of domestically-produced liquefied natural gas by vessel.³²⁴

407. In May 2017, the Department of Commerce issued a report, *Top Markets Report Upstream Oil and Gas Equipment*, that contained the following statement: “Despite low natural gas prices, the United States began exporting liquefied natural gas (LNG) from the lower-48 states for the first time in fifty years.”³²⁵

³²² U.S. Dep’t of Energy, Long Term Applications Received by DOE/FE to Export Domestically Produced LNG from the Lower-48 States (as of March, 16, 2018) (2018). [MIL #1 Exh. 85; Doc. 270-47; Bates P00000017927- P00000017933].

³²³ U.S. Dep’t of Transp., Port Performance Freight Statistics Program: Annual Report to Congress 4-12 (2017). [MIL #1 Exh. 310; Doc. 299-114; Bates P00000019937- P00000020212, at P00000020000].

³²⁴ U.S. Dep’t of Energy, Office of Fossil Energy, LNG Monthly (YTD – through December 2017) (2018). [MIL #2 Exh. 587; Doc. 341-587; Bates P00000121288-P00000121306, at P00000121297].

³²⁵ U.S. Dep’t of Commerce, Top Markets Report Upstream Oil and Gas Equipment (May 2017) 5, 9 https://www.trade.gov/topmarkets/pdf/Oil_and_Gas_Top_Markets_Report.pdf (last visited June 4, 2018). [MIL #1 Exh. 373; Doc. 299-177; Bates P00000018049- P00000018132, at P00000018055].

408. On March 20, 2018, Department of State Deputy Assistant Secretary Sandra Oudkirk made the following statements at the event *Economics vs. Geopolitics? Nord Stream 2, Ukraine, and Europe's Energy Security in Brussels*: “The United States is a brand new LNG exporter. First exports happened in 2016. First permitting began in 2014.”³²⁶

409. Coastal facilities through which coal may be exported are subject to federal review and approval. Answer ¶ 183.

410. Although in 1975 Congress authorized the Office of the President to restrict coal exports under the Energy Policy and Conservation Act of 1975, 42 U.S.C. § 6212(a), no President has exercised this authority to impose any significant export restrictions on coal. Answer ¶ 183.

411. In 2011, the United States exported 107 million short tons of coal. Answer ¶ 184.

412. In 2012, the United States exported 125 million short tons of coal, the highest level of coal exports in over twenty years. Answer ¶ 184.

413. In 2014, the United States imported 11 million short tons of coal and exported 97 million short tons of coal. Answer ¶ 184.

414. In 2017, the United States imported approximately 7.8 million short tons of coal and exported approximately 97 million short tons of coal.³²⁷

415. The U.S. Energy Information Administration reports: “The United States is a net exporter of coal, meaning that it exports more coal to other countries than it imports. In 2012, U.S. coal

³²⁶ U.S. Dep’t of State, News & Events, Remarks by DAS Sandra Oudkirk, Bureau of Energy Resources, at Martens Centre in Brussels (March 20, 2018), <https://useu.usmission.gov/remarks-das-sandra-oudkirk-bureau-energy-resources-martens-centre-brussels/> (last visited June 6, 2018). [MIL #1 Exh. 119; Doc. 270-81; Bates P00000020417-P00000020418, at P00000020403].

³²⁷ U.S. Energy Info. Admin., March 2018: Monthly Energy Review 99 (2018), <https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf>. [MIL #1 Exh. 135; Doc. 270-97; Bates P00000027839- P00000028082, at P00000027947].

exports reached a record high of 126 million short tons, equal to 12% of U.S. coal production. U.S. coal exports declined each year from 2012 through 2016 and then increased in 2017. In 2017, the United States exported about 97 million short tons of coal—equal to about 13% of U.S. coal production—to at least 42 countries.”³²⁸

416. The U.S. Energy Information Administration reports that “[t]he top five destinations of U.S. coal exports and their shares of total coal exports in 2017” were India (11.8%), South Korea (9.7%), The Netherlands (9.7%), Japan (7.9%), and Brazil (7.8%).³²⁹

417. The Department of Transportation’s PHMSA develops and enforces regulations for the safe, reliable, and environmentally sound operation of the U.S.’s 2.6 million mile pipeline transportation system for fossil fuels.³³⁰

418. On April 19, 2017, the Congressional Research Service issued a report, *Presidential Permit Review for Cross-Border Pipelines & Electric Transmission*, that contained the following statement: “Executive permission in the form of a Presidential Permit has long been required for the construction, connection, operation, and maintenance of certain facilities that cross the United States borders with Canada and Mexico.”³³¹

³²⁸ *Coal Explained: Coal Imports and Exports*, U.S. EIA, https://www.eia.gov/energyexplained/index.php?page=coal_imports (to be filed with Plaintiffs’ Third Motion *in Limine*).

³²⁹ *Coal Explained: Coal Imports and Exports*, U.S. EIA, https://www.eia.gov/energyexplained/index.php?page=coal_imports (to be filed with Plaintiffs’ Third Motion *in Limine*).

³³⁰ Gas Pipeline Miles by System Type – 2017, PHMSA, <https://hip.phmsa.dot.gov/> (last visited Apr. 25, 2018) (access through search in Pipeline Data Mart); General Pipeline FAQs, PHMSA, <https://www.phmsa.dot.gov/faqs/general-pipeline-faqs> (last visited Apr. 25, 2018). [MIL #1 Exh. 168; Doc. 270-130; Bates P00000028374].

³³¹ Cong. Research Serv., *Presidential Permit Review for Cross-Border Pipelines & Electric Transmission* (April 19, 2017), <https://fas.org/sgp/crs/misc/R44140.pdf>. [MIL #1 Exh. 114; Doc. 270-76; Bates P00000020356-P00000020376, at P00000020357].

419. Pipelines are the primary mode for transporting crude oil and petroleum within the United States.³³²

420. No pipeline to transport fossil fuels can begin operation until certified as safe by the Department of Transportation.³³³

421. The Department of Transportation's OPS develops, implements, and enforces the safety standards, procedures, and actual development and expansion of any pipeline system in the United States.³³⁴

422. PHMSA has made the following statement on its website: "The nation's more than 2.6 million miles of pipelines safely deliver trillions of cubic feet of natural gas and hundreds of billions of ton/miles of liquid petroleum products each year."³³⁵

423. From 2000 to 2017, the U.S. natural gas pipeline transportation network delivered approximately 434,000 billion cubic feet of natural gas.³³⁶

424. As of August 2017, the Department of State had issued permits for 48 cross-border

³³² U.S. Dep't of Transp., Bureau of Transp. Statistics, Transportation Statistics Annual Report 67 (2016), https://www.bts.gov/sites/bts.dot.gov/files/docs/TSAR_2016.pdf. [MIL #1 Exh. 169; Doc. 270-131; Bates P00000026910- P00000027155, at P00000026988].

³³³ U.S. Natural Gas Regulatory Authorities, U.S. Energy Info. Admin., https://www.eia.gov/naturalgas/archive/analysis_publications/ngpipeline/regulatory.html (last visited Apr. 25, 2018). [MIL #1 Exh. 170; Doc. 270-132; Bates P00000029786- P00000029787].

³³⁴ U.S. Natural Gas Regulatory Authorities, U.S. Energy Info. Admin., https://www.eia.gov/naturalgas/archive/analysis_publications/ngpipeline/regulatory.html (last visited Apr. 25, 2018). [MIL #1 Exh. 170; Doc. 270-132; Bates P00000029786- P00000029787].

³³⁵ General Pipeline FAQs, PHMSA, <https://www.phmsa.dot.gov/faqs/general-pipeline-faqs> (last visited Apr. 25, 2018). [MIL #1 Exh. 171; Doc. 270-133; Bates P00000029781- P00000029785, at P00000029782].

³³⁶ Natural Gas Consumption (Billion Cubic Feet), Bureau of Transp. Statistics, https://www.transtats.bts.gov/osea/seasonaladjustment/?PageVar=NATURAL_GAS (last visited Apr. 25, 2018). [MIL #1 Exh. 175; Doc. 270-137; Bates P00000029805- P00000029809].

pipelines that transport liquid petroleum and petroleum products.³³⁷

425. As of 2017, there were approximately 318,710 miles of natural gas transmission and gathering pipelines in the United States.³³⁸

426. As of 2017, there were approximately 2,233,208 miles of total distribution main and estimated service for gas distribution systems in the United States.³³⁹

427. On February 8, 2017, the U.S. Army Corps of Engineers granted an easement to Dakota Access LLC for installation, construction, operation, maintenance, and repair of a light crude pipeline, the final approval needed to complete the Dakota Access Pipeline.³⁴⁰

428. The Dakota Access Pipeline has the capacity to transport around 500,000 barrels of crude oil per day.³⁴¹

429. On March 24, 2017, Under Secretary of State for Political Affairs Thomas A. Shannon, Jr. issued a presidential permit to TransCanada Keystone Pipeline, L.P. authorizing TransCanada to construct, operate, and maintain pipeline facilities at the U.S.-Canadian border in Phillips

³³⁷ *Permit List*, Dept. of State, <https://www.state.gov/p/wha/rt/permit/274063.htm> (to be filed with Plaintiff's Third Motion *in Limine*).

³³⁸ Annual Report Mileage for Natural Gas Transmission & Gathering Systems, PHMSA (Apr. 4, 2018), <https://www.phmsa.dot.gov/data-and-statistics/pipeline/annual-report-mileage-natural-gas-transmission-gathering-systems>. [MIL #1 Exh. 172; Doc. 270-134; Bates P00000028471-P00000028473, at P00000028472].

³³⁹ Annual Report Mileage for Gas Distribution Systems, PHMSA (Apr. 4, 2018), <https://www.phmsa.dot.gov/data-and-statistics/pipeline/annual-report-mileage-gas-distribution-systems>. [MIL #1 Exh. 173; Doc. 270-135; Bates P00000029096- P00000029098, at P00000029097].

³⁴⁰ U.S. Army Corps of Engineers, Omaha Dist., Corps Grants Easement to Dakota Access, LLC, <http://www.nwo.usace.army.mil/Media/News-Releases/Article/1077134/corps-grants-easement-to-dakota-access-llc/> (last visited May 24, 2018). [MIL #1 Exh. 300; Doc. 299-104;; Bates P00000020259].

³⁴¹ President Trump Takes Action to Expedite Priority Energy and Infrastructure Projects, White House (Jan. 24, 2017), <https://www.whitehouse.gov/briefings-statements/president-trump-takesaction-expedite-priority-energy-infrastructure-projects/>. [MIL #1 Exh. 232; Doc. 299-36; Bates P00000025001- P00000025004, at P00000025002].

County, Montana for the importation of crude oil.³⁴²

430. The Department of Transportation's FRA regulates more than 760 railroads, including 640 freight railroads across the United States.³⁴³

431. From 2012 to 2017, approximately 1.5 billion barrels of crude oil were transported by rail in the United States.³⁴⁴

432. In 2015, 64.9% of domestic coal shipments were transported by rail in the United States.³⁴⁵

433. Oil shipment by rail in the United States increased from less than 1% in 2010 to 14.2% in 2016.³⁴⁶

434. In 2014, approximately 155 million short tons of coal and coke were transported via internal U.S. waterways.³⁴⁷

435. In 2014, approximately 165.7 million short tons of petroleum were transported via

³⁴² U.S. Dep't of State, "Issuance of Presidential Permit to TransCanada for Keystone XL Pipeline," (March 24, 2017), <https://www.state.gov/r/pa/prs/ps/2017/03/269074.htm>. [MIL #1 Exh. 123; Doc. 270-85; Bates P00000020426- P00000020427].

³⁴³ Overview, Fed. Railroad Admin., <https://www.fra.dot.gov/Page/P0351> (last visited Apr. 25, 2018). [MIL #1 Exh. 179; Doc. 270-141; Bates P00000028474- P00000028475].

³⁴⁴ Movements of Crude Oil and Selected Products by Rail, U.S. Energy Info. Admin., <https://www.eia.gov/dnav/pet/pet move railNA a EPC0 RAIL mbbl a.htm>. [MIL #1 Exh. 181; Doc. 270-143; Bates P00000028481- P00000028482].

³⁴⁵ U.S. Dep't of Transp., Bureau of Transp. Statistics, Transportation Statistics Annual Report 69 (2016), https://www.bts.gov/sites/bts.dot.gov/files/docs/TSAR_2016.pdf. [MIL #1 Exh. 183; Doc. 270-145; Bates P00000026910- P00000027155, at P00000026990].

³⁴⁶ U.S. Dep't of Transp., Bureau of Transp. Statistics, Freight Facts and Figures 2017, at 2-7 (2017), https://www.bts.gov/sites/bts.dot.gov/files/docs/FFF_2017.pdf. [MIL #1 Exh. 180; 270-142; Bates P00000027156- P00000027263, at P00000027172].

³⁴⁷ Coal and Coke: Monthly Indicator for Internal U.S. Waterways, U.S. Army Corps of Eng'rs, Navigation Data Ctr., Waterborne Commerce Statistics Ctr. (last updated Apr. 19, 2018), <http://www.navigationdatacenter.us/wcsc/wcmcoal.htm>. [MIL #1 Exh. 305; Doc. 299-109; Bates P00000019924].

internal U.S. waterways.³⁴⁸

436. In 2016, approximately 120 million short tons of coal were transported on the U.S. waterway system.³⁴⁹

437. The EPA has issued regulations that apply to petroleum refineries. Answer ¶ 186.

438. The EPA has established CO₂ emission standards for certain types of power plants. Answer ¶¶ 125, 146, 153.

439. Under the Clean Air Act (CAA), EPA has issued standards for refineries that apply based on certain characteristics and refineries may be subject to permitting requirements under EPA permitting programs. Answer ¶ 186.

440. Certain products and equipment are subject to energy conservation standards set either by statute or by Department of Energy regulations. Answer ¶ 188.

441. The Department of Energy is required to establish building energy efficiency standards for all new federal buildings. Answer ¶ 188.

442. The Department of Energy, through the Building Technology Office, sets energy efficiency standards which dictate energy consumption rates for appliances and equipment. Answer ¶ 105.

443. The Department of Commerce's National Institute of Standards Technology develops measurement science, predictive models, and performance metrics to improve the energy

³⁴⁸ Petroleum: Monthly Indicator for Internal U.S. Waterways, U.S. Army Corps of Eng'rs, Navigation Data Ctr., Waterborne Commerce Statistics Ctr. (last updated Apr. 19, 2018), <http://www.navigationdatacenter.us/wcsc/wcmpetro.htm>. [MIL #1 Exh. 308; Doc. 299-112; Bates P00000020213].

³⁴⁹ U.S. Army Corps of Eng'rs, The U.S. Waterway System: 2016 Transportation Facts & Information 2 (2017), <http://www.navigationdatacenter.us/factcard/FactCard2016.pdf>. [MIL #1 Exh. 309/306; Doc. 299-113; Bates P00000019925- P00000019936, at P00000019926].

efficiency of building components and systems, and advances measurement science, standards, and technology related to energy utilization in buildings. Answer ¶ 119(a).

444. The Department of Energy's Building Technologies Office implements minimum energy conservation standards for more than 60 categories of appliances and equipment, which covers about 90% of home energy use.³⁵⁰

445. The Department of Transportation, through the National Highway Traffic Safety Administration (NHTSA), sets fuel economy standards for passenger cars and light trucks produced for sale in the United States. Answer ¶ 114(b), 189.

446. Passenger cars and light trucks cannot be sold in the United States unless they comply with the fuel economy standards for passenger cars and light trucks promulgated by the Department of Transportation through NHTSA.³⁵¹

447. The Department of Energy, through the Office of Energy Efficiency and Renewable Energy, sets the minimum number of light duty alternative fuel vehicles required in certain federal fleets. Answer ¶ 105.

448. The Department of Transportation did not change fuel efficiency standards for passenger cars for twenty years between model year 1990–2010.³⁵²

³⁵⁰ Appliance and Equipment Standards Program, U.S. Dep't of Energy, Office of Energy Efficiency & Renewable Energy. [June 18 MIL Exh. 92; Doc. 270-54; Bates P00000017934-P00000017939, at P00000017935].

³⁵¹ Corporate Average Fuel Economy (CAFE) Standards, U.S. Dep't of Transp., <https://www.transportation.gov/mission/sustainability/corporate-average-fuel-economy-cafe-standards> (last visited Apr. 25, 2018). [MIL #1 Exh. 151; Doc. 270-113; Bates P00000028468-P00000028470].

³⁵² U.S. Env'tl. Prot. Agency, EPA-420-R-18-001, Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2017, at 118 (2018), <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100TGDW.pdf>. [MIL #1 Exh. 143; Doc. 270-105; Bates P00000028212- P00000028369, at P00000028334].

449. The United States has historically had one of the lowest fuel efficiency standards in terms of fleet-average fuel economy rating among developed nations.³⁵³

450. Fuel economy for long wheelbase light-duty vehicles was 17.4 miles per gallon in 1993 and 17.4 miles per gallon in 2016.³⁵⁴

451. Sports Utility Vehicles are less fuel-efficient and emit greater quantities of CO₂ per mile than lighter-weight vehicles, if other factors are held equal. Answer ¶ 190.

452. The Department of Transportation's NHTSA withdrew a proposed rule that would have required tire manufacturers to rate replacement tires based on fuel efficiency (rolling resistance) performance, which would have saved about 1 to 2 billion gallons of fuel per year, in response to President Trump's Presidential Memorandum, Regulatory Freeze Pending Review issued on January 20, 2017.³⁵⁵

453. The FAA has stated that anyone who wants to fly an aircraft—human-operated or not—in U.S. airspace needs some level of approval from the FAA.³⁵⁶

³⁵³ NHTSA, DOT HS 811 286, Information about Corporate Average Fuel Economy (CAFE) Standards (2010), https://www.nhtsa.gov/staticfiles/laws_regs/pdf/811286.pdf. [MIL #1 Exh. 152; Doc. 270-114; Bates P00000029776].

³⁵⁴ U.S. Energy Info. Admin., March 2018: Monthly Energy Review 19 (2018), <https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf>. [MIL #1 Exh. 156; Doc. 270-118; Bates P00000027839- P00000028082, at P00000027867].

³⁵⁵ Tire Fuel Efficiency Consumer Information—Part 2, RIN 2127-AK76, Office of Info. & Reg. Affairs, <https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201610&RIN=2127-AK76> (last visited Apr. 25, 2018). [MIL #1 Exh. 167; Doc. 270-129; Bates P00000029779- P00000029780]; U.S. Dep't of Transp., Nat'l Highway Traffic Safety Admin., DOT HS 811 119, NHTSA Tire Fuel Efficiency Consumer Information Program Development: Phase 1 – Evaluation of Laboratory Test Protocols 1 (2009), https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/fmvss/Laboratory_Test_Protocols.pdf. [MIL #1 Exh. 166; Doc. 270-128; Bates P00000026357- P00000026460, at P00000026374].

³⁵⁶ Busting Myths about the FAA and Unmanned Aircraft, FAA (Feb. 26, 2014), <https://www.faa.gov/news/updates/?newsId=76240>. [MIL #1 Exh. 188;; Doc. 270-150; Bates P00000029101- P00000029103, at P00000029101].

454. The Government Accountability Office has found that the development and adoption of low-emissions technologies in aviation is dependent in part on “any government policies that price aircraft emissions.”³⁵⁷

455. In Fiscal Year 2017, GHG emissions from standard operations of the federal government (not including military and law enforcement) totaled 38,182,256.8 MT CO_{2e}.³⁵⁸

456. In Fiscal Year 2017, GHG emissions from non-standard operations³⁵⁹ totaled 38,753,720.0 MT CO_{2e}.³⁶⁰

457. The Department of Defense is responsible for most of the energy consumed by the federal government, spending billions of dollars each year to power its permanent military installations around the world.³⁶¹

³⁵⁷ U.S. Gov’t Accountability Office, GAO-09-554, Aviation and Climate Change: Aircraft Emissions Expected to Grow, but Technological and Operational Improvements and Government Policies Can Help Control Emissions 22 (2009). [MIL #1 Exh. 184; Doc. 270-146; Bates P00000028112- P00000028211, at P00000028138].

³⁵⁸ U.S. Dep’t of Energy, Energy Efficiency & Renewable Energy, Comprehensive Energy Data and Sustainability Performance, <http://ctsedweb.ee.doe.gov/Annual/Report/ComprehensiveGreenhouseGasGHGInventoriesByAgencyAndFiscalYear.aspx>

³⁵⁹ Non-Standard Operations are vehicles, vessels, aircraft and other equipment used by Federal Government agencies in combat support, combat service support, tactical or relief operations, training for such operations, law enforcement, emergency response, or spaceflight (including associated ground-support equipment). Non-Standard operations also include generation of electric power produced and sold commercially to other parties. U.S. Dep’t of Energy, Energy Efficiency & Renewable Energy, Comprehensive Energy Data and Sustainability Performance, <http://ctsedweb.ee.doe.gov/Annual/Report/ComprehensiveGreenhouseGasGHGInventoriesByAgencyAndFiscalYear.aspx>

³⁶⁰ U.S. Dep’t of Energy, Energy Efficiency & Renewable Energy, Comprehensive Energy Data and Sustainability Performance, <http://ctsedweb.ee.doe.gov/Annual/Report/ComprehensiveGreenhouseGasGHGInventoriesByAgencyAndFiscalYear.aspx>

³⁶¹ EIA, Today in Energy, <https://www.eia.gov/todayinenergy/detail.php?id=19871> (February 5, 2015). [MIL #1 Exh. 273; Doc. 299-77; Bates P00000020218- P00000020219, at P00000020218]; Issue Summary: Energy Management in DOD Facilities, Gov’t Accountability

458. The Department of Defense manages over 500 installations worldwide, comprising nearly 300,000 buildings.³⁶²

459. In Fiscal Year 2016, the Department of Defense used 709,232.9 Billion BTU of total site-delivered energy in all end-use sectors, which equates to 77% of total federal government energy usage.³⁶³

460. The Department of Defense uses enough electricity to power 2.6 million average American homes.³⁶⁴

461. The Department of Defense's daily oil use is over 12,000,000 gallons.³⁶⁵

462. In Fiscal Year 2015, Department of Defense fleet vehicles consumed just over 72 million gallons of gasoline equivalent, which includes gasoline and diesel/biodiesel blends.³⁶⁶

463. The United States' Strategic Petroleum Reserve is the world's largest supply of

Office, https://www.gao.gov/key_issues/energy_management_dod_facilities/issue_summary (last visited May 6, 2018) [MIL #1 Exh. 268; Doc. 299-72; Bates P00000019919].

³⁶² Department of Defense, Annual Energy Management Report Fiscal Year 2015, at 7 (June 2016), <https://www.acq.osd.mil/eie/downloads/ie/fy%202015%20aemr.pdf>. [MIL #1 Exh. 270; Doc. 299-74; Bates P00000019314- P00000019464, at P00000019320].

³⁶³ Comprehensive Annual Energy Data and Sustainability Performance, U.S. Dep't of Energy, <http://ctsedweb.ee.doe.gov/Annual/Report/TotalSiteDeliveredEnergyUseInAllEndUseSectorsByFederalAgencyBillionBtu.aspx> (last visited May 6, 2018). [MIL #1 Exh. 272; Doc. 299-76; Bates P00000020301- P00000020302, at P00000020302].

³⁶⁴ Dep't of Defense, Nat'l Renewable Energy Lab., <https://www.nrel.gov/workingwithus/defense.html> (last visited May 6, 2018). [MIL #1 Exh. 271; Doc. 299-75; Bates P00000020214- P00000020217, at P00000020214].

³⁶⁵ Dep't of Defense, Nat'l Renewable Energy Lab., <https://www.nrel.gov/workingwithus/defense.html> (last visited May 6, 2018). [MIL #1 Exh. 271; Doc. 299-75; Bates P00000020214- P00000020217, at P00000020214].

³⁶⁶ Department of Defense, Annual Energy Management Report Fiscal Year 2015 (June 2016), <https://www.acq.osd.mil/eie/downloads/ie/fy%202015%20aemr.pdf> at 31. [MIL #1 Exh. 274/270; Doc. 299-78; Bates P00000019314- P00000019464, at P00000019344].

emergency crude oil, with a design capacity of 713.5 million barrels of oil.³⁶⁷

464. The federal government had 1,340,000 cars and 1,810,000 trucks in its fleet in 2016.³⁶⁸

465. In 2015, the federal fleet consumed 310,416 thousand gallons of gasoline.³⁶⁹

466. In 2015, the federal fleet consumed 66,736 thousand gallons of diesel.³⁷⁰

467. In 2015, 62% of Department of Transportation's fleet vehicles surveyed were not low greenhouse gas emitting vehicles.³⁷¹

468. In 2012, 80.5% (435,273 MWh) of the Department of Agriculture's electricity usage was from non-renewable electricity.³⁷²

469. The Clean Power Plan, developed by the EPA under President Obama, was not designed to address the extraction, production, and exportation of fossil fuels and was not designed to return United States' greenhouse gas emissions to 1990 levels nor was it designed to serve as a complete response to all climate change. Answer ¶ 127.

470. The Clean Power Plan, developed by the EPA under President Obama, would have likely

³⁶⁷ Strategic Petroleum Reserve, U.S. Dep't of Energy, Office of Fossil Energy, <https://energy.gov/fe/services/petroleum-reserves/strategic-petroleum-reserve>. [MIL #1 Exh. 90; Doc. 270-52; Bates P00000017988- P00000017993, at P00000017989].

³⁶⁸ Oak Ridge Nat'l Lab., ORNL/TM-2017/513, Transportation Energy Data Book 7-3 (36th ed. 2017), <https://cta.ornl.gov/data/index.shtml>. [MIL #1 Exh. 148; Doc. 270-110; Bates P00000027319- P00000027718, at P00000027499].

³⁶⁹ Oak Ridge Nat'l Lab., ORNL/TM-2017/513, Transportation Energy Data Book 7-7 (36th ed. 2017), <https://cta.ornl.gov/data/index.shtml>. [MIL #1 Exh. 148; Doc. 270-110; Bates P00000027319- P00000027718, at P00000027503].

³⁷⁰ Oak Ridge Nat'l Lab., ORNL/TM-2017/513, Transportation Energy Data Book 7-7 (36th ed. 2017), <https://cta.ornl.gov/data/index.shtml>. [MIL #1 Exh. 148; Doc. 270-110; Bates P00000027319- P00000027718, at P00000027503].

³⁷¹ U.S. Dep't of Transp., 2016 Strategic Sustainability Performance Plan 67 (2016), https://cms.dot.gov/sites/dot.gov/files/2016%20DOT%20SSPP%20Final_Complete_Sept_2016.pdf. [MIL #1 Exh. 149; Doc. 270-111; Bates P00000028379- P00000028467, at P00000028447].

³⁷² U.S. Dep't of Agric., 2012 Strategic Sustainability Performance Plan 17 (2012). [MIL #1 Exh. 77; Doc. 270-39; Bates P00000001765- P00000001790, at P00000001781].

led to an increase in the use of natural gas for electricity generation. Answer ¶ 127.

471. In 2011, DOI approved 1,381 of the 1,413 requests (97.7%) received from private entities to extend deepwater Gulf and Alaskan offshore oil leases after the Deepwater Horizon oil spill.³⁷³

472. Significant climate impacts have already occurred in the United States. Answer ¶ 241.

473. Positive feedbacks and potential tipping points for some biological physical systems exist. Answer ¶ 241.

474. Some changes caused by climate change may be irreversible. Answer ¶ 241.

475. Climate change endangers human health by affecting the air humans breathe, food and water sources, and human interactions with built and natural environments. Answer ¶ 237.

476. Climate change is likely to be associated with an increase in allergies, asthma, cancer, cardiovascular disease, stroke, heat-related morbidity and mortality, food-borne diseases, injuries, and toxic exposures. Answer ¶ 237.

477. At least 9,000 Americans have died from heat-related illnesses since 1979. Answer ¶ 238.

478. Climate change increases the prevalence and geographic distribution of occurrences of some infectious diseases. Answer ¶ 237.

479. As of 2015, there were twice as many Lyme disease cases than reported in 1991. Answer ¶ 238.

480. In the past three decades, the percentage of Americans with asthma has more than doubled, and climate change is putting those Americans at greater risk of requiring

³⁷³ Dep't of the Interior, New Energy Frontier, at DH-38 (2012), https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/FY2013_BIB_DH027.pdf. [MIL #1 Exh. 215; Doc. 299-19; Bates P00000020743- P00000020756, at P00000020754].

hospitalization. Answer ¶ 238.

481. Longer growing seasons resulting from increased temperatures have allowed ragweed to produce pollen for a longer period, exacerbating the effects of ragweed allergies. Answer ¶ 238.

482. In its 1996 summary of the Conference on Human Health and Global Climate Change, the National Science and Technology Council and the National Academy of Sciences made the following statements: “An increase in average temperature would probably be accompanied by an increase in the number and severity of extreme heatwaves in some areas. This would cause an increase in illness and death, particularly among the young, the elderly, the frail, and the ill, especially in large urban areas.”³⁷⁴

483. In its 1996 summary of the Conference on Human Health and Global Climate Change, the National Science and Technology Council and the National Academy of Sciences reported on Al Gore’s made the following statements: “Changing temperatures and rainfall patterns are predicted to also increase the spread of infectious diseases. Insects that carry disease organisms may now move to areas that were once too cold for them to survive. These new breeding sites and higher temperatures may also speed reproduction. Diseases we had hoped were just a memory in this country are suddenly a renewed threat.”³⁷⁵

484. In its 1996 summary of the Conference on Human Health and Global Climate Change, the National Science and Technology Council and the National Academy of Sciences made the following statements: “Higher temperatures and humidity may also lead to higher concentrations of plant pollen and fungal spores that cause allergic disorders such as asthma and hay fever.”³⁷⁶

³⁷⁴ Doc. 341-226 at P00000063977.

³⁷⁵ Doc. 341-226 at P00000063972.

³⁷⁶ Doc. 341-226 at P00000063982.

485. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “Rising levels of CO₂ and resulting climate changes alter the production, allergenicity (a measure of how much particular allergens, such as ragweed, affect people), distribution, and seasonal timing of aeroallergens. These changes increase the severity and prevalence of allergic diseases in humans. Higher pollen concentrations and longer pollen seasons can increase allergic sensitization and asthma episodes and thereby limit productivity at work and school.”³⁷⁷

486. Assuming no change in regulatory controls or population assessments, an estimated 1,000 to 4,300 additional premature deaths will occur nationally per year by 2050 from combined ozone and particle health effects. Answer ¶ 255.

487. Climate change is expected to increase ground-level ozone pollution over broad areas of the country due to surface temperature and other impacts, including large metropolitan population centers. Ground-level ozone can affect the respiratory system, including through irritation of the airways, reductions in lung function, aggravation of asthma, and airway inflammation. Answer ¶ 255.

488. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “Health impacts associated with climate-related changes in exposure to extreme events include death, injury, or illness; exacerbation of underlying medical conditions; and adverse effects on mental health [High Confidence]. Climate change will increase exposure risk

³⁷⁷ Doc. 341-303 at P00000070418.

in some regions of the United States due to projected increases in the frequency and/or intensity of drought, wildfires, and flooding related to extreme precipitation and hurricanes [Medium Confidence].”³⁷⁸

489. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “Many types of extreme events related to climate change cause disruption of infrastructure, including power, water, transportation, and communication systems, that are essential to maintaining access to health care and emergency response services and safeguarding human health [High Confidence].”³⁷⁹

490. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “Increasing concentrations of greenhouse gases lead to an increase of both average and extreme temperatures, leading to an increase in deaths and illness from heat and a potential decrease in deaths from cold.”³⁸⁰

491. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statement: “Changes in climate, specifically rising temperatures, altered precipitation patterns, and increasing concentrations of atmospheric carbon dioxide, are expected to contribute to increases in the levels of some airborne allergens and associated increases in asthma episodes and other allergic illnesses [High Confidence].”³⁸¹

³⁷⁸ Doc. 341-303 at P00000070357.

³⁷⁹ Doc. 341-303 at P00000070357.

³⁸⁰ Doc. 341-303 at P00000070391.

³⁸¹ Doc. 341-303 at P00000070355.

492. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “Climate change will make it harder for any given regulatory approach to reduce ground-level ozone pollution in the future as meteorological conditions become increasingly conducive to forming ozone over most of the United States [Likely, High Confidence]. Unless offset by additional emissions reductions of ozone precursors, these climate-driven increases in ozone will cause premature deaths, hospital visits, lost school days, and acute respiratory symptoms [Likely, High Confidence].”³⁸²

493. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “Wildfires emit fine particles and ozone precursors that in turn increase the risk of premature death and adverse chronic and acute cardiovascular and respiratory health outcomes [Likely, High Confidence]. Climate change is projected to increase the number and severity of naturally occurring wildfires in parts of the United States, increasing emissions of particulate matter and ozone precursors and resulting in additional adverse health outcomes [Likely, High Confidence].”³⁸³

494. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “The effects of global climate change on mental health and well-being are integral parts of the overall climate-related human health impacts. Mental health consequences of climate change range from minimal stress and distress symptoms to clinical disorders, such as anxiety,

³⁸² Doc. 341-303 at P00000070355.

³⁸³ Dkt 341-303 at P00000070355.

depression, post-traumatic stress, and suicidal thoughts.”³⁸⁴

495. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statement: “Many people will experience adverse mental health outcomes and social impacts from the threat of climate change, the perceived direct experience of climate change, and changes to one’s local environment [High Confidence].”³⁸⁵

496. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “The impact of extreme heat on mental health is associated with increased incidence of disease and death, aggressive behavior, violence, and suicide and increases in hospital and emergency room admissions for those with mental health or psychiatric conditions.”³⁸⁶

497. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “There may be a link between extreme heat (climate change related or otherwise) and increasing violence, aggressive motives, and/or aggressive behavior. The frequency of interpersonal violence and intergroup conflict may increase with more extreme precipitation and hotter temperatures. These impacts can include heightened aggression, which may result in increased interpersonal violence and violent crime, negatively impacting individual and societal mental health and well-being.”³⁸⁷

498. In the 2016 report *The Impacts of Climate Change on Human Health in the United*

³⁸⁴ Doc. 341-303 at P00000070565.

³⁸⁵ Doc. 341-303 at P00000070365.

³⁸⁶ Doc. 341-303 at P00000070568.

³⁸⁷ Doc. 341-303 at P00000070568.

States: A Scientific Assessment, the U.S. Global Change Research Program made the following statements: “Many people exposed to climate-related or weather-related disasters experience stress and serious mental health consequences. Depending on the type of the disaster, these consequences include post-traumatic stress disorder (PTSD), depression, and general anxiety, which often occur at the same time [Very High Confidence]. The majority of affected people recover over time, although a significant proportion of exposed individuals develop chronic psychological dysfunction [High Confidence].”³⁸⁸

499. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “Specific groups of people are at higher risk for distress and other adverse mental health consequences from exposure to climate-related or weather-related disasters. These groups include children, the elderly, women (especially pregnant and post-partum women), people with preexisting mental illness, the economically disadvantaged, the homeless, and first responders [High Confidence]. Communities that rely on the natural environment for sustenance and livelihood, as well as populations living in areas most susceptible to specific climate change events, are at increased risk for adverse mental health outcomes [High Confidence].”³⁸⁹

500. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “The threat of climate change is a key psychological and emotional stressor. Individuals and communities are affected both by direct experience of local events attributed to climate change and by exposure to information regarding climate change and its effects. For

³⁸⁸ Doc. 341-303 at P00000070564.

³⁸⁹ Doc. 341-303 at P00000070564.

example, public communication and media messages about climate change and its projected consequences can affect perceptions of physical and societal risks and consequently affect mental health and well-being. The interactive and cumulative nature of climate change effects on health, mental health, and well-being are critical factors in understanding the overall consequences of climate change on human health.”³⁹⁰

501. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “Many people exposed to climate- or weather-related natural disasters experience stress reactions and serious mental health consequences, including symptoms of post-traumatic stress disorder (PTSD), depression, and general anxiety, which often occur simultaneously.”³⁹¹

502. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program stated: “Exposure to life threatening events, like highly destructive hurricanes such as Hurricane Katrina in 2005, have been associated with acute stress, PTSD, and higher rates of depression and suicide in affected communities. These mental health consequences are of particular concern for people facing recurring disasters, posing a cumulative psychological toll.”³⁹²

503. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “Disaster-related stress reactions and accompanying psychological impacts occur in many individuals directly exposed to the event and can continue over extended time periods (up

³⁹⁰ Doc. 341-303 at P00000070566.

³⁹¹ Doc. 341-303 at P00000070566.

³⁹² Doc. 341-303 at P00000070566.

to a year or more). For example, three months after Hurricane Andrew, 38% of children (age 8 to 12 years) living in affected areas of south Florida reported symptom levels consistent with a ‘probable diagnosis’ of PTSD. At 10 months post-disaster, this proportion declined to about 18%, representing a substantial decrease but still indicating a significant number of individuals with serious mental health issues resulting from the disaster event.”³⁹³

504. In its 2008 report *Analyses of the Effects of Global Change on Human Health and Welfare and Human Systems*, the U.S. EPA made the following statements: “There is a rich body of literature detailing the mental health impacts of extreme weather events. Anxiety and depression, the most common mental health disorders, can be directly attributable to the experience of the event (i.e., being flooded) or indirectly during the recovery process (e.g., Gerrity and Flynn, 1997). These psychological effects tend to be much longer lasting and can be worse than the physical effects experienced during an event and its immediate aftermath.”³⁹⁴

505. In its 2008 report *Analyses of the Effects of Global Change on Human Health and Welfare and Human Systems*, the U.S. EPA made the following statements: “Extreme events are often multi-strike stressors, with stress associated with the event itself; the disruption and problems of the recovery period; and the worry or anxiety about the risk of recurrence of the event (Tapsell et al., 2002). During the recovery period, mental health problems can arise from the challenges associated with geographic displacement, damage to the home or loss of familiar possessions, and stress involved with the process of repairing.”³⁹⁵

506. In its 2008 report *Analyses of the Effects of Global Change on Human Health and*

³⁹³ Doc. 341-303 at P00000070569.

³⁹⁴ Doc. 341-409 at P00000090649.

³⁹⁵ Doc. 341-409 at P00000090649.

Welfare and Human Systems, the U.S. EPA made the following statements: “Communities are an integral determinant of human well-being. Climate change that affects public goods—such as damaged infrastructure or interruptions in public services—or disrupts the production of goods and services, will affect economic performance including overall health, poverty, employment, and other measures. These changes may have consequences, such as a lost job or a more difficult commute, that affect individual well-being directly. In other cases, individual well-being may be indirectly affected due to concern for the well-being of other individuals, or for a lack of cohesion within the community. The sustainability or resilience of a community (i.e., its ability to cope with climate change and other stressors over the long term) may be reduced by climate change weakening the physical and social environment. In the extreme, such changes may undermine the individual’s sense of security or faith in government’s capacity to accommodate change.”³⁹⁶

507. Climate change is likely to be associated with an increase in mental health and stress disorders, and neurological diseases and disorders. Answer ¶ 237.

508. In the 1982 report *Environmental Societal Consequences of a Possible CO₂-induced Climate Change: Response of the West Antarctic Ice Sheet to CO₂-induced Climatic Warming*, the Department of Energy made the following statements: “The serious consequences of the ~ 6 [meter] sea level rise that would occur in the event of a major shrinkage of the West Antarctic ice sheet would include flooding of all existing port facilities and other low-lying coastal structures, most of the world’s beaches, extensive sections of the heavily farmed and densely populated river deltas of the world, and large areas of many of the major cities of the world, which are

³⁹⁶ Doc. 341-409 at P00000090717.

concentrated along coast lines.”³⁹⁷

509. In its September 1983 report *Can We Delay A Greenhouse Warming?*, the EPA made the following statements: “Given current uncertainties, an initial effort to estimate the range of possible sea level rise concluded that increases of anywhere from about 48 to 380 cm (2 to 12 ft.) are possible in the next 120 years ([citation omitted]). An increase of [] even 48 cm could flood or cause storm damage to many of the major ports of the world, disrupt transportation networks, alter aquatic ecosystems, and cause major shifts in land development patterns.”³⁹⁸

510. A memorandum to President Clinton dated September 15, 1997 from Chair of the National Economic Council Gene Sperling, Chair of the Council on Environmental Quality Katie McGinty, and Assistant to the President for International Economic Policy Dan Tarullo contained the following statements: “This increase in carbon concentrations is expected to produce an increase in mean global temperature of between 2 and 6.5 degrees Fahrenheit. Associated with this increase in temperatures will be a rise in sea levels that will inundate more than 9000 square miles in the United States (with Florida and Louisiana most vulnerable).”³⁹⁹

511. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statements: “Coastal populations with greater vulnerability to health impacts from coastal flooding include persons with disabilities or other access and functional needs, certain populations of color, older adults, pregnant women and children, low-income populations, and some occupational groups [High Confidence]. Climate change will increase exposure risk to

³⁹⁷ Doc. 341-174 at P00000059162.

³⁹⁸ U.S. EPA, *Can We Delay A Greenhouse Warming?* 1-7-1-8 (1983). [MIL #1 Exh. 342; Doc. 299-146; Bates P00000007230- P00000007437, at P00000007256-P00000007257].

³⁹⁹ Doc. 341-235 at P00000064374.

coastal flooding due to increases in extreme precipitation and in hurricane intensity and rainfall rates, as well as sea level rise and the resulting increases in storm surge [High Confidence].”⁴⁰⁰

512. Scientific assessments of the Intergovernmental Panel on Climate Change (IPCC) and the National Academies have projected sea level rise by the end of the next century of 0.26 meters to 2 meters (depending on the assessment, the emissions scenario, and the response of the Greenland and Antarctic ice sheets), and that sea level rise will lead to increases in flooding and other damages in coastal and island communities. Answer ¶¶ 214, 243.

513. The United States’ sea levels have risen from glacial and ice cap melting, as well as from the thermal expansion of the ocean itself. Answer ¶ 218.

514. The rate of sea level rise over the last decade is faster than the rate over the past century. Answer ¶ 218.

515. Sea level rise has caused increased flooding in many communities the inundation of low-lying lands and beaches, loss of wetlands, and increased salinity of near-coastal estuaries and aquifers. Answer ¶¶ 218–19.

516. Approximately 20 square miles of land along the Atlantic Coast were converted to open water between 1966 and 2011. Answer ¶ 219.

517. In 2011, NOAA’s Office of Coast Survey retired 35 place names for islands, bays, passes, and ponds that had ceased to exist because of sea level rise.⁴⁰¹

518. Relative sea level rise may be higher than the global average in areas with land subsidence or changes in ocean currents such as the land around the Gulf of Mexico and the East

⁴⁰⁰ Doc. 341-303 at P00000070446.

⁴⁰¹ NOAA, Office of Coast Survey, Historical Geographic Place Names Removed From NOAA Charts, https://historicalcharts.noaa.gov/pdfs/HistoricalPlacenames_Louisiana.pdf (last updated August 4, 2014). [MIL #1 Exh. 358; Doc. 299-162; Bates P00000018151- P00000018154].

Coast. Answer ¶ 243.

519. Coastal states, such as Maryland and Louisiana, are experiencing wetland loss due to rising sea levels. Answer ¶ 219.

520. Arctic sea ice is declining. In 2014, the Arctic sea ice extent for September was 479,000 square miles below the September average for 1981–2010. Answer ¶ 223.

521. In 2017, the Arctic sea ice extent for September was 654,000 square miles below the 1981-2010 average.⁴⁰²

522. Arctic sea ice extent for September 2017 averaged 4.87 million square kilometers (1.88 million square miles), the seventh lowest in the 1979 to 2017 satellite record. This was 1.67 million square kilometers (645,000 square miles) below the 1981 to 2010 average.⁴⁰³

523. Non-linear changes in the Greenland and Antarctic ice sheets could contribute to additional sea level rise. Answer ¶ 244.

524. Sea level rise will result in increased erosion and the loss of land. In Washington and Oregon, more than 140,000 acres of coastal lands lie within 40 inches in elevation of high tide. Answer ¶ 243.

525. The oceans have absorbed about 28% of the CO₂ produced by human activities over the past 250 years, leading to an increase in surface ocean acidity of about 30 percent. Answer ¶¶ 230, 259.

526. Under some high-emission scenarios, surface ocean waters could be nearly 150 percent more acidic, resulting in a rate of change in pH that the oceans likely have not experienced for

⁴⁰² National Snow and Ice Data Center, <http://nsidc.org/arcticseaicenews/2017/10/arctic-sea-ice-2017-tapping-the-brakes-in-september/> (last visited October 5, 2018).

⁴⁰³ National Snow and Ice Data Center, <http://nsidc.org/arcticseaicenews/2017/10/arctic-sea-ice-2017-tapping-the-brakes-in-september/> (last visited October 5, 2018).

more than 100 million years. Answer ¶ 232.

527. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program: “Increased carbon dioxide traps heat as a part of a greenhouse effect, it serves as an insulator that keeps heat in the atmosphere. That heat then warms the oceans. . . . [A]bout 93% of the [excess heat] is absorbed into the upper oceans. And that’s causing warming of the oceans along with the atmosphere.”⁴⁰⁴

528. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, the amount of ocean warming since preindustrial times “varies geographically” but “normally, [there is] about two-thirds [of a degree C] as much warming in the ocean as the atmosphere.”⁴⁰⁵

529. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, ocean acidification occurs because “[a]s extra carbon dioxide is accumulating in the atmosphere, it is being absorbed into the upper ocean. That increase in carbon dioxide interacts with the ocean chemistry to make the pH or the amount of hydrogen ions in the water change. [This process] drives [the ocean water] from a condition on pH scale from more basic to more acidic.”⁴⁰⁶

530. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, “ocean acidification and ocean deoxygenation [are] occurring as a result of primarily the emissions of carbon dioxide into the atmosphere.”⁴⁰⁷

531. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, the value that coral reef ecosystems provide for humans include: “food and livelihoods to over

⁴⁰⁴ Mark Eakin Deposition at 23:2–8.

⁴⁰⁵ Mark Eakin Deposition at 23:12–17.

⁴⁰⁶ Mark Eakin Deposition at 23–24:23–27.

⁴⁰⁷ Mark Eakin Deposition at 24:20–24.

half a billion people around the world. They're a major food source. They are a source of drug discoveries. They provide breakwaters that protect shorelines, as well as producing beach sand, among other things.”⁴⁰⁸

532. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, people who live in coastal communities in Florida and Hawaii “benefit from the protections that reefs provide from storm events and surges.”⁴⁰⁹

533. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, “at least 25 percent of marine fish species are found in coral reefs.”⁴¹⁰

534. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, “[o]cean warming is harming coral reefs. Ocean acidification has some impact on coral reefs.”⁴¹¹

Answer ¶ 233.

535. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, the single greatest threat to corals globally is “climate change.”⁴¹²

536. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, “current atmospheric carbon dioxide levels of approximately 405 parts per million [are] dangerous for coral.”⁴¹³

537. For major U.S. coral reefs, projections based on a business-as-usual scenario show extensive bleaching and dramatic loss of shallow coral cover occurring by 2050, and near complete loss by 2100. Answer ¶ 234.

⁴⁰⁸ Mark Eakin Deposition at 53:4–11.

⁴⁰⁹ Mark Eakin Deposition at 54:6–13.

⁴¹⁰ Mark Eakin Deposition at 54:1–5.

⁴¹¹ Mark Eakin Deposition at 25:12–13.

⁴¹² Mark Eakin Deposition at 50:3–5.

⁴¹³ Mark Eakin Deposition at 34–35:25–3.

538. Under a business-as-usual scenario, Hawaii coral cover is projected to decline from 38% (coral cover in 2015) to approximately 5% by 2050, with further declines thereafter. Answer ¶ 234.

539. Under a business-as-usual scenario, in Florida and Puerto Rico coral is projected to disappear even faster than in Hawaii. Answer ¶ 234.

540. An increase in surface ocean acidity (and a decrease in aragonite saturation levels), has adverse impacts on ocean organisms that use carbonate in their shells and skeletons, placing a number of such organisms at risk and impacting larger ecosystems as well. Organisms at risk include corals, oysters, clams, scallops, mussels, abalone, crabs, geoducks, barnacles, sea urchins, sand dollars, sea stars, sea cucumbers, some single-celled organisms, protists, and certain forms of seaweed. Answer ¶¶ 230–31.

541. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, “NOAA consider[s] the impact of carbon dioxide and climate change on our oceans to be dangerous.”⁴¹⁴

542. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, “the first mass coral bleaching events” occurred “during the 1980s.”⁴¹⁵

543. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, mass coral bleaching events were “extremely widespread” in 2016. The bleaching events “extended across the Indian Ocean, across the Pacific Ocean, many parts of the Caribbean as well.”⁴¹⁶

⁴¹⁴ Mark Eakin Deposition at 31:1–4.

⁴¹⁵ Mark Eakin Deposition at 33:23–25.

⁴¹⁶ Mark Eakin Deposition at 20–21:21–1.

544. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, in 2016, coral bleaching was “moderate” in Hawaii, and bleaching in U.S. territories throughout the Pacific occurred in varying degrees.⁴¹⁷

545. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, coral reefs in the Florida Keys are “substantially degraded.”⁴¹⁸

546. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program: “Securing a future for coral reefs, including intensively managed ones such as the Great Barrier Reef, ultimately requires urgent and rapid action to reduce global warming.”⁴¹⁹

547. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, humanity is “in an emergency situation with respect to protecting our oceans.”⁴²⁰

548. Warmer waters in regional estuaries, such as Puget Sound, may contribute to a higher incidence of harmful blooms of algae linked to paralytic shellfish poisoning and may result in adverse economic impacts from beach closures affecting recreational harvesting of shellfish, such as razor clams. Answer ¶ 232.

549. Climate change is associated with increases in hurricane intensity, increased frequency of intense storms and heavy precipitation, and that the number of very heavy precipitation events has been significantly above average since 1991. Answer ¶ 220.

550. In his testimony at the May 8, 1989 hearing before the Senate Subcommittee on Science, Technology, and Space entitled *Climate Surprises*, Dr. James Hansen made the following statement: “What we find in our climate modeling is that the large-scale warming which all of

⁴¹⁷ Mark Eakin Deposition at 21:12–14, 23–24.

⁴¹⁸ Mark Eakin Deposition at 49:3–6.

⁴¹⁹ Mark Eakin Deposition at 68:17–23.

⁴²⁰ Mark Eakin Deposition at 70:19–22.

the models obtain causes an increased frequency of both extreme droughts and extreme wet situations in the model.”⁴²¹

551. Prolonged heat events in recent years have been the most extreme on record and climate change has contributed to these events. Answer ¶ 221.

552. Heat waves will increase in frequency, severity, and duration with the projected rise in average temperatures. Under a higher-emissions scenario, the number of heat-wave days in Los Angeles is projected to double, and the number of heat-wave days in Chicago to quadruple, resulting in more deaths. Answer ¶ 247.

553. Across the U.S., nine of the top ten years for extreme one-day precipitation events have occurred since 1990. Answer ¶ 220.

554. There have been and will continue to be changes in the nation’s water cycle as a result of climate change, including more winter and spring precipitation in the northern United States. Answer ¶ 221.

555. The average extent of North American snow cover decreased at a rate of about 3,300 square miles per year between 1972 and 2015, with the largest decreases occurring in spring and summer. Answer ¶ 222.

556. As of 2015, the United States snow cover season has become shorter by nearly two weeks. Answer ¶ 222.

557. Glaciers have been receding on average within the United States. Answer ¶ 225.

558. In 2010, the USGS reported that every glacier it studied in the Brooks Range of Northern Alaska is in retreat. Answer ¶ 225.

⁴²¹ Doc. 341-190 at P00000060592.

559. Melting of mountain glaciers due to climate change can impact the timing of water flow downstream, which can have adverse impacts on water systems and flooding, including for areas that rely on snow melt for irrigation and water supply. Reduced snowpack impacts fresh water management and supply. Answer ¶ 222, 226.

560. As temperatures warm, areas reliant on snow melt for irrigation and drinking water supplies will be impacted, and in the western United States increasing snow melt will increase flooding in some mountain watersheds. Answer ¶ 226.

561. Much of the Northwest's water is stored naturally in winter snowpack in the mountains. Climate change threatens this natural storage by changing the timing of snowmelt and the amount of water available in streams and rivers (streamflow) throughout the year, reducing water supplies for competing demands. Answer ¶ 249.

562. By 2050, snowmelt is projected to shift three to four weeks earlier than the 20th century average. Answer ¶ 249.

563. On June 23, 1988, Dr. Syukoro Manabe of NOAA's Geophysical Fluid Dynamics Laboratory, testified in front of the Senate Committee on Energy and Natural Resources and made the following statement: "In summary it is likely that severe mid-continental summer dryness will occur more frequently with increasing atmospheric temperatures as warming becomes larger and larger toward the next century."⁴²²

564. There have been and will continue to be changes in the nation's water cycle as a result of climate change, including less precipitation in the Southwest (and more intense droughts

⁴²² Dr. Syukoro Manabe, Geophysical Fluid Dynamics Laboratory, National Oceanic and Atmospheric Administration, Hearing Before the U.S. Senate Committee on Energy and Natural Resources: Part 2, S. Hrg. 100-461 pt. 2, at 107 (June 23, 1988) [MIL #1 Exh. 17; Doc. 299-206; Bates P00000036792- P00000037010, at P00000036902].

projected for the Southwest). Answer ¶¶ 221, 248.

565. Because of increasing temperatures, as well as changes in variability in some regions, drought is expected to increase across most of the central and southern United States—even in regions with increasing precipitation. Answer ¶¶ 221, 248.

566. The Department of Agriculture has projected that, because of climate change: wildfire will increase throughout the United States, causing at least a doubling of area burned by the mid-21st century.⁴²³

567. In the U.S., 72,000 wildfires have been recorded, on average, each year between 1983 and 2015. Answer ¶ 229.

568. The Department of Agriculture, through the USFS, has made the following statement: “Climate change has led to fire seasons that are now on average 78 days longer than in 1970.”⁴²⁴

569. In its April 1993 report *Effects of CO₂ and Climate Change on Forest Trees*, the EPA made the following statement: “Changes in soil conditions due to loss of forest cover could slow forest reestablishment. Consequently, there could be a shift in area from forest to non-forest vegetation. Fire frequencies are likely to increase in the region given increased temperatures, unchanged precipitation and higher potential evapotranspiration.”⁴²⁵

570. In the 2000 report *The Impact of Climate Change on America’s Forests: A Technical*

⁴²³ U.S. Dep’t of Agric., Forest Serv., PNW-GTR-870, *Effects of Climatic Variability and Change on Forest Ecosystems: A Comprehensive Science Synthesis for the U.S. Forest Sector* v (2012), https://www.usda.gov/oce/climate_change/effects_2012/FS_Climate1114%20opt.pdf. [MIL #1 Exh. 61; Doc. 270-23; Bates P00000001791- P00000002072, at P00000001797].

⁴²⁴ U.S. Dep’t of Agric., Forest Serv., *The Rising Cost of Wildfire Operations: Effects on the Forest Service’s Non-Fire Work* 2 (2015), <https://www.fs.fed.us/sites/default/files/2015-FireBudget-Report.pdf>. [MIL #1 Exh. 56; Doc. 270-18; Bates P00000004767- P00000004782, at P00000004768].

⁴²⁵ Doc. 341-220 at P00000062938.

Document Supporting the 2000 USDA Forest Service RPA Assessment, the U.S. Forest Service made the following statement: “Future climate coincident with changes in fire management practices and possible forest decline or dieback could bring longer fire seasons and potentially more frequent and larger fires in all forest zones (even those that do not currently support fire).”⁴²⁶

571. In 1985, 82,591 fires burned 2,896,147 acres on private, state, and federal lands, costing the Department of Agriculture \$161,505,000 and the Department of the Interior \$78,438,000 in nominal dollars.⁴²⁷

572. In 2017, 71,499 fires burned 10,026,086 acres on private, state, and federal lands, costing the Department of Agriculture \$2,410,165,000 and the Department of the Interior \$508,000,000 in nominal dollars.⁴²⁸

573. Climate change and ocean acidification threaten the survival of plants, fish, and wildlife, and also threaten biodiversity. Answer ¶ 235.

574. There is an increase in the risk of species extinctions due to the rate of climate change and ocean acidification. Answer ¶ 235.

575. Many species will face changes in abundance, distribution, and species interactions due to climate change. Some of these changes will have adverse impacts for ecosystems and humans. Answer ¶ 235.

⁴²⁶ Doc. 341-240 at P00000064593.

⁴²⁷ Nat’l Interagency Fire Ctr., *Federal Firefighting Costs (Suppression Only)* (2018), https://www.nifc.gov/fireInfo/fireInfo_documents/SuppCosts.pdf. [MIL #1 Exh. 57; Doc. 270-19; Bates P00000005070].

⁴²⁸ Nat’l Interagency Fire Ctr., *Federal Firefighting Costs (Suppression Only)* (2018), https://www.nifc.gov/fireInfo/fireInfo_documents/SuppCosts.pdf. [MIL #1 Exh. 57; 270-19; Bates P00000005070].

576. In its April 1993 report *Effects of CO₂ and Climate Change on Forest Trees*, the EPA made the following statement: “Despite the limitations of the expert judgment and models, some overall conclusions can be made. Foremost is that the distribution and composition of forests in Washington and Oregon could change substantially.”⁴²⁹

577. In its April 1993 report *Effects of CO₂ and Climate Change on Forest Trees*, the EPA made the following statement: “In Central Oregon, total forested area is projected to decrease by almost half under a 5°C warming.”⁴³⁰

578. In its May 1997 report, *Climatic Change in the National Parks, Wildlife Refuges and Other Department of Interior Lands in the United States*, the Department of Interior made the following statement: “[I]t appears the basic vulnerability of DOI lands under these climatic conditions may be characterized by species that fail to migrate, fail to adapt, migrate to a less-protected environment, or are otherwise placed at a competitive disadvantage.”⁴³¹

579. Under warming conditions, in Alaska there are spruce beetles that mature in one year rather than two years. Various beetles have killed millions of hectares of trees across the United States. Answer ¶ 227.

580. From 1984 to 2008, wildfire and bark beetles killed trees across 20% of Arizona and New Mexico forests.⁴³²

581. In the Northwest, summer temperature increases (and in certain basins, increased river

⁴²⁹ Doc. 341-220 at P00000062938-P00000062939.

⁴³⁰ Doc. 341-220 at P00000062938-P00000062939.

⁴³¹ Doc. 341-228 at P00000064228.

⁴³² U.S. Glob. Change Research Program, *Climate Change Impacts in the United States: The Third National Climate Assessment* 468 (2014), http://s3.amazonaws.com/nca2014/low/NCA3_Climate_Change_Impacts_in_the_United%20States_LowRes.pdf?download=1. [MIL #1 Exh. 59/38; Doc. 270-21; Bates P00000003301-P00000004141, at P00000003778].

flooding and winter flows, and decreased summer flows), will threaten many freshwater species, particularly salmon, steelhead, and trout. Rising temperatures will increase disease and mortality in several iconic salmon species. Answer ¶ 249.

582. In its 2016 report *Implications for US National Security of Anticipated Climate Change*, the Department of Defense made the following statement: “Even if climate-induced environmental stresses do not lead to conflict, they are likely to contribute to migrations that exacerbate social and political tensions, some of which could overwhelm host governments and populations. Sudden extreme weather—such as from floods, droughts, and severe tropical storms—almost certainly will increase the number of displaced people, particularly in regions that are unaccustomed to or unprepared for such events. Rising sea levels and unexpectedly large storm surges could threaten small island states and low-lying coastal regions—including many megacities—with flooding and saltwater contamination of freshwater. Over 20 years, the net effects of climate change on the patterns of global human movement and statelessness could be dramatic, perhaps unprecedented. If unanticipated, they could overwhelm government infrastructure and resources, and threaten the social fabric of communities.”⁴³³

583. In its September 1983 report, *Can We Delay A Greenhouse Warming?*, the EPA made the following statement: “[D]espite adjustments to agricultural practices, some currently productive land may no longer be suitable for farming because of significant changes in the length of the growing season or in rainfall patterns. Similarly, if water resource planning does not anticipate

⁴³³ Nat’l Intelligence Council, NIC WP 2016-01, *Implications for US National Security of Anticipated Climate Change* 7 (2016), https://www.dni.gov/files/documents/Newsroom/Reports%20and%20Pubs/Implications_for_US_National_Security_of_Anticipated_Climate_Change.pdf. [MIL #1 Exh. 275; Doc. 299-79; Bates P00000019557- P00000019569, at P00000019563] .

shifts in rainfall patterns, water shortages could reach catastrophic proportions.”⁴³⁴

584. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statement: “Protein content of major food crops is very likely to decline significantly as atmospheric CO₂ concentrations increase to between 540 and 960 parts per million (ppm), the range projected by the end of this century.”⁴³⁵

585. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statement: “Rising CO₂ levels are very likely to lower the concentrations of essential micro- and macroelements such as iron, zinc, calcium, magnesium, copper, sulfur, phosphorus, and nitrogen in most plants (including major cereals and staple crops). Ratio of major macronutrients (carbohydrates to protein). It is very likely that rising CO₂ will alter the relative proportions of major macronutrients in many crops by increasing carbohydrate content (starch and sugars) while at the same time decreasing protein content. An increase in dietary carbohydrates-to-protein ratio can have unhealthy effects on human metabolism and body mass.”⁴³⁶

586. Changes in water supply and water quality caused by climate change will impact agriculture in the U.S. Climate change may increase the prevalence of parasites and diseases that affect livestock, increase the range and distribution of weeds and pests, cause changes in precipitation patterns and extreme weather events, and reductions in water availability may all result in reduced agricultural productivity. Answer ¶ 227.

⁴³⁴ U.S. EPA, Can We Delay A Greenhouse Warming? 1-8 (1983). [MIL #1 Exh. 342; Doc. 299-146; Bates P00000007230- P00000007437, at P00000007257].

⁴³⁵ Doc. 341-303 at P00000070543).

⁴³⁶ Doc. 341-303 at P00000070543.

587. Climate change effects on agriculture will have consequences for food scarcity. Climate change is predicted to decrease crop yield, increase crop prices, and decrease the concentrations of protein and essential minerals in crops such as wheat and rice, which lowers these crops' nutritional value. Answer ¶ 228.

588. A study by the EPA estimated that without reductions in GHGs, an estimated 190,000 inland bridges would be structurally vulnerable because of climate change by the end of the century, with an adaptation cost of about \$170 billion between 2010 and 2050. The study projects that in the Northwest, including Washington and parts of Oregon and Idaho, 56% of inland bridges are identified as vulnerable in the second half of the 21st Century. Answer ¶ 252.

589. A study by the EPA projects that, without reductions in greenhouse gas emissions, adaptation costs in 2100 associated with updating urban drainage to handle the 50-year 24-hour storm in 50 United States cities are projected to range from \$1.1 to \$12 billion and that, without adaptation, unmitigated climate change is projected to result in \$5 trillion in damages for coastal property due to sea level rise. Answer ¶ 253.

590. A study by the EPA projects that, without reductions in GHG emissions, the resulting increases in extreme heat would lead to unsuitable working conditions and a large negative impact on United States labor hours—specifically, a decrease of 1.8 billion labor hours, with about \$170 billion in lost wages in 2100. Answer ¶ 254.

591. In 1978, President Carter made the following statement: “America’s hope for energy to sustain economic growth beyond the year 2000 rests in large measure on the development of

renewable and essentially inexhaustible sources of energy.”⁴³⁷

592. The Department of Energy has acknowledged that high temperatures shut down one reactor at Dominion Resources’ Millstone Nuclear Power Station in Connecticut in August 2012 because the temperature of the intake cooling water, withdrawn from the Long Island Sound, was too high—the warmest since operations began in 1970—and exceeded technical specifications of the reactor, incurring a loss of 255,000 megawatt-hours of power.⁴³⁸

593. In its initial screening-level assessment of the vulnerability of projects with respect to sea level change due to climate change, the U.S. Army Corps of Engineers concluded that 1,431 of 5,545 Corps projects were prescreened as potentially impacted by sea level change.⁴³⁹

594. USFS’s firefighting suppression costs incurred in 2017 were the highest on record.⁴⁴⁰

595. The Department of Defense has acknowledged that climate change will affect the Department of Defense’s ability to defend the Nation and poses immediate risks to U.S. national

⁴³⁷ President Jimmy Carter, Golden, Colorado Remarks at the Solar Energy Research Institute on South Table Mountain (May 3, 1978), <http://www.presidency.ucsb.edu/ws/print.php?pid=30746> [MIL #1 Exh. 9; Doc. 299-198; Bates P00000030545- P00000030547, at P00000030545].

⁴³⁸ Craig Zamuda, et al., U.S. Dep’t of Energy, DOE/PI-0013, U.S. Energy Sector Vulnerabilities to Climate Change and Extreme Weather (2013). [MIL #1 Exh. 82; Doc. 270-44; Bates P00000017302- P00000017385, at P00000017312].

⁴³⁹ U.S. Army Corps of Eng’rs, Screening-Level Assessment of Projects with Respect to Sea Level Change i (2015), http://www.corpsclimate.us/docs/CESL_Screening_level_assessment_sea_level_change_JUN_2015.pdf. [MIL #1 Exh. 276; Doc. 299-80; Bates P00000019290- P00000019313, at P00000019291]; Climate Preparedness and Resilience: Climate Change Adaptation, CorpsClimate <http://www.corpsclimate.us/ccaceslcurves.cfm> (last visited May 6, 2018) [MIL #1 Exh. 277; Doc. 299-81; Bates P00000019920- P00000019921].

⁴⁴⁰ Forest Service Wildland Fire Suppression Costs Exceed \$2 Billion, U.S. Dep’t of Agric. (Sept. 14, 2017), <https://www.usda.gov/media/press-releases/2017/09/14/forest-service-wildland-firesuppression-costs-exceed-2-billion>. [MIL #1 Exh. 58; Doc. 270-20; Bates P00000007079- P00000007081, at P00000007079].

security.⁴⁴¹

596. The National Intelligence Council found that climate change is likely to pose wide-ranging national security challenges for the United States and other countries over the next 20 years through threats to the stability of other countries.⁴⁴²

597. A May 1990 report from the United States Naval War College, *Global Climate Change and Implications for the United States Navy*, contained the following statement: “Naval operations in the coming half century may be drastically affected by the impact of global climate change.”⁴⁴³

598. A May 1990 report from the United States Naval War College, *Global Climate Change and Implications for the United States Navy*, contained the following statement: “[W]ithin the Department of the Navy (DON), there is a significant requirement to consider the effects of global warming and climate change within their long term policy and plans.”⁴⁴⁴

599. In a survey of nearly 3,500 domestic military sites conducted by Department of Defense,

⁴⁴¹ Dep’t of Defense, 2014 Climate Change Adaptation Roadmap 1 (2014), https://www.acq.osd.mil/EIE/Downloads/CCARprint_wForward_e.pdf. [MIL #1 Exh. 312; Doc. 299-116; Bates P00000019221- P00000019240, at P00000019223].

⁴⁴² Nat’l Intelligence Council, NIC WP 2016-01, Implications for US National Security of Anticipated Climate Change 3 (2016), [https://www.dni.gov/files/documents/Newsroom/Reports%20and%20Pubs/Implications for US National Security of Anticipated Climate Change.pdf](https://www.dni.gov/files/documents/Newsroom/Reports%20and%20Pubs/Implications_for_US_National_Security_of_Anticipated_Climate_Change.pdf). [MIL #1 Exh. 275; Doc. 299-79; Bates P00000019557- P00000019569, at P00000019559].

⁴⁴³ The U.S. Naval War College, *Global Climate Change and Implications for the United States Navy* (May 1990), <http://documents.theblackvault.com/documents/weather/climatechange/globalclimatechange-navy.pdf>. [Doc. 299-103; Bates P00000035548- P00000035634, at P00000035557].

⁴⁴⁴ The U.S. Naval War College, *Global Climate Change and Implications for the United States Navy* (May 1990), <http://documents.theblackvault.com/documents/weather/climatechange/globalclimatechange-navy.pdf>. [MIL #1 Exh. 316/299; Doc. 299-120; Bates P00000035548- P00000035634, at P00000035565].

about 50% of respondents stated that their site faces risks from impacts associated with climate change.⁴⁴⁵

600. In 2005, after leading the initial campaigns in Afghanistan and Iraq, Secretary of Defense (then General) James Mattis called on the Department of Defense to “unleash us from the tether of fuel.”⁴⁴⁶

601. The *Joint Operating Environment 2010* report issued by the United States Joint Forces Command on February 18, 2010 included climate change as one of the ten trends most likely to impact the Joint Forces.⁴⁴⁷

602. In its Climate Change Roadmap dated April 2010, the U.S. Navy made the following statement: “Climate change is a national security challenge with strategic implications for the Navy.”⁴⁴⁸

603. In its 2010 *Quadrennial Defense Review Report*, the Department of Defense made the following statements: “While climate change alone does not cause conflict, it may act as an accelerant of instability or conflict, placing a burden to respond on civilian institutions and

⁴⁴⁵ U.S. Dep’t of Def., Climate-Related Risk to DoD Infrastructure: Initial Vulnerability Assessment Survey (SLVAS) Report 2 (2018), <https://climateandsecurity.files.wordpress.com/2018/01/tab-b-slvas-report-1-24-2018.pdf>. [MIL #1 Exh. 280; Doc. 299-84; Bates P00000019827- P00000019858, at P00000019830].

⁴⁴⁶ U.S. Dep’t of Defense, News Transcript, DOD News Briefing with Deputy Secretary Lynn and Assistant Secretary Burke from the Pentagon on the DOD Operational Energy Strategy, <http://archive.defense.gov/transcripts/transcript.aspx?transcriptid=4840> (last visited May 30, 2018). [MIL #1 Exh. 318; Doc. 299-122; Bates P00000020264- P00000020268, at P00000020265].

⁴⁴⁷ U.S. Joint Forces Command, *The Joint Operating Environment 2010*, at 32 (2010), <https://fas.org/man/eprint/joe2010.pdf>. [MIL #1 Exh. 285; Doc. 299-89; Bates P00000018694- P00000018769, at P00000018727].

⁴⁴⁸ U.S. Navy, Climate Change Roadmap (April 2010), <http://www.navy.mil/navydata/documents/CCR.pdf>. [MIL #1 Exh. 320; Doc. 299-124;; Bates P00000018770- P00000018797, at P00000018774].

militaries around the world. In addition, extreme weather events may lead to increased demands for defense support to civil authorities for humanitarian assistance or disaster response both within the United States and overseas.”⁴⁴⁹

604. In its January 2013 Report, *Assessing Impacts of Climate Change on Coastal Military Installations: Policy Implications*, the Department of Defense Strategic Environmental Research and Development Program made the following statement: “Climate change will have serious implications for the ability of the Department of Defense (DOD) to maintain its natural and built infrastructure and to ensure military readiness.”⁴⁵⁰

605. At the Halifax International Security Forum on November 22, 2013, former Secretary of Defense Chuck Hagel made the following statement: “Climate change does not directly cause conflict, but it can significantly add to the challenges of global instability, hunger, poverty, and conflict. Food and water shortages, pandemic disease, disputes over refugees and resources, more severe natural disasters – all place additional burdens on economics, societies, and institutions around the world.”⁴⁵¹

606. In its 2014 *Quadrennial Defense Review Report*, the Department of Defense made the following statements: “The impacts of climate change may increase the frequency, scale, and

⁴⁴⁹ U.S. Dep’t of Def., Quadrennial Defense Review Report 85 (2010), https://www.defense.gov/Portals/1/features/defenseReviews/QDR/QDR_as_of_29JAN10_1600.pdf. [MIL #1 Exh. 288; Doc. 299-92; Bates P00000018566- P00000018693, at P00000018673].

⁴⁵⁰ U.S. Dep’t of Defense, Strategic Environmental Research & Development Program, *Assessing Impacts of Climate Change on Coastal Military Installations: Policy Implications* (January 2013), https://climateandsecurity.files.wordpress.com/2014/01/serdp-coastal-assessment-white-paper_january-2013.pdf. [MIL #1 Exh. 317; Doc. 299-121; Bates P00000018994- P00000019061, at P00000019004].

⁴⁵¹ Dep’t of Def., Secretary of Defense Speech, Halifax Int’l Security Forum (DoD Arctic Strategy) (Nov. 22, 2013), <http://archive.defense.gov/Speeches/Speech.aspx?SpeechID=1821> (last visited May 17, 2018). [MIL #1 Exh. 313; Doc. 299-117; Bates P00000020260- P00000020263, at P00000020260].

complexity of future missions, including defense support to civil authorities, while at the same time undermining the capacity of our domestic installations to support training activities. Our actions to increase energy and water security, including investments in energy efficiency, new technologies, and renewable energy sources, will increase the resiliency of our installations and help mitigate these effects.”⁴⁵²

607. In its report *2014 Climate Change Adaptation Roadmap*, the Department of Defense made the following statements: “Among the future trends that will impact our national security is climate change. Rising global temperatures, changing precipitation patterns, climbing sea levels, and more extreme weather events will intensify the challenges of global instability, hunger, poverty, and conflict. They will likely lead to food and water shortages, pandemic disease, disputes over refugees and resources, and destruction by natural disasters in regions across the globe.”⁴⁵³

608. In its 2015 report *National Security Implications of Climate-Related Risks and a Changing Climate*, the Department of Defense reported to Congress that it “sees climate change as a present security threat, not strictly a long-term risk.”⁴⁵⁴

⁴⁵² U.S. Dep’t of Def., Quadrennial Defense Review 2014, at VI (2014), https://www.defense.gov/Portals/1/features/defenseReviews/QDR/2014_Quadrennial_Defense_Review.pdf. [MIL #1 Exh. 289; Doc. 299-93; Bates P00000019062- P00000019149, at P00000019073].

⁴⁵³ U.S. Dep’t of Def., 2014 Climate Change Adaptation Roadmap (2014), https://www.acq.osd.mil/eie/Downloads/CCARprint_wForward_e.pdf (foreword by former Defense Secretary Chuck Hagel). [MIL #1 Exh. 290; Doc. 299-94; Bates P00000019221- P00000019240, at P00000019222].

⁴⁵⁴ U.S. Dep’t of Def., Response to Congressional Inquiry on National Security Implications of Climate-Related Risks and a Changing Climate 14 (2015), <http://archive.defense.gov/pubs/150724-congressional-report-on-national-implications-of-climate-change.pdf?source=govdelivery>. [MIL #1 Exh. 291; Doc. 299-95; Bates P00000019276- P00000019289, at P00000019289].

609. The 2015 *National Security Strategy* identified climate change as one of the top strategic risks to U.S. national interests.⁴⁵⁵

610. On September 21, 2016, the National Intelligence Council made the following statement in its memorandum, *Implications for US National Security of Anticipated Climate Change* (NIC WP 2016-01): “At present, the growing implications for humans of extreme weather events suggest that climate-change related disruptions are well underway.”⁴⁵⁶

611. In Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks issued in 1997, President Clinton ordered “each Federal agency” to “make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children” and to “ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.”⁴⁵⁷

612. In its 2009 report to Congress *Second National Assessment: Global Climate Change Impacts in the United States*, the U.S. Global Change Research Program made the following statement: “[c]ertain groups, including children, the elderly, and the poor, are most vulnerable to a range of climate-related health effects.”⁴⁵⁸

⁴⁵⁵ President of the United States, *National Security Strategy 2* (2015), <http://nssarchive.us/wp-content/uploads/2015/02/2015.pdf>. [MIL #1 Exh. 14; Doc. 299-118; Bates P00000019186-P00000019220, at P00000019188].

⁴⁵⁶ Nat’l Intelligence Council, NIC WP 2016-01, *Implications for US National Security of Anticipated Climate Change* 13 (2016), https://www.dni.gov/files/documents/Newsroom/Reports%20and%20Pubs/Implications_for_US_National_Security_of_Anticipated_Climate_Change.pdf. [MIL #1 Exh. 279; Doc. 299-83; Bates P00000019557- P00000019569, at P00000019569].

⁴⁵⁷ Doc. 341-227 at P00000064222.

⁴⁵⁸ U.S. Global Change Research Program, *Second National Assessment: Global Climate Change Impacts in the United States* 89 (2009),

613. In its 2013 report *America's Children and the Environment*, the EPA made the following statements: "Climate change is likely to change the timing, frequency, and intensity of extreme weather events, including heat waves, hurricanes, heavy rainfall, droughts, high coastal waters, and storm surges. These events can cause traumatic injury and death, as well as emotional trauma. Extreme weather events are also associated with increased risk of food- and water-borne illnesses as sanitation, hygiene, and safe food and water supplies are often compromised after these types of events. One study found that periods of heavy rainfall were associated with increased emergency room visits for gastrointestinal illness among children. Heavy rainfall may result in flooding, which can lead to contamination of water with dangerous chemicals, heavy metals, or other hazardous substances from storage containers or from preexisting chemical contamination already in the environment. Elevated temperatures and low precipitation are also projected to increase the size and severity of wildfires. This can lead to increased eye and respiratory illnesses and injuries, which include burns and smoke inhalation. Extreme weather events can be especially dangerous for children because they are dependent on adults for care and protection."⁴⁵⁹

614. In its 2013 report *America's Children and the Environment*, the EPA made the following statements: "Children are expected to be especially sensitive to the effects of climate change for a number of reasons. Young children and infants are particularly vulnerable to heat-related illness and death. Compared with adults, children have higher breathing rates, spend more time outside, and have less developed respiratory tracts—all making children more sensitive to air

<https://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf> [MIL #1 Exh. 35; Doc. 299-224; Bates P00000034774- P00000034969 at P00000034866].

⁴⁵⁹ EPA, *America's Children and the Environment* 106 (3rd ed. 2013). [MIL #1 Exh. 376; Doc. 299-180; Bates P00000035044- P00000035115, at P00000035157].

pollutants. Additionally, children have immature immune systems, meaning that they can experience more serious impacts from infectious diseases. The greatest impacts are likely to fall on children in poor families, who lack the resources, such as adequate shelter and access to air conditioning, to cope with climate change.”⁴⁶⁰

615. In its 2016 document *Climate Change and the Health of Children*, the EPA made the following statement: “Children are especially vulnerable to the impacts of climate change because of (1) their growing bodies; (2) their unique behaviors and interactions with the world around them; and (3) their dependency on caregivers.”⁴⁶¹

616. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statement: “Children are at particular risk for distress, anxiety, and other adverse mental health effects in the aftermath of an extreme event.”⁴⁶²

617. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statement: “Significantly more children than adults have shown continued PTSD symptoms more than two years post-disaster, and, in general, children are more likely to be impaired by a disaster. Chronic stress from the acute and ongoing impacts of climate change may alter biological stress response systems and make growing children more at risk for developing mental health conditions later in life, such as anxiety, depression, and other clinically diagnosable

⁴⁶⁰ EPA, *America’s Children and the Environment* 107 (3rd ed. 2013). [MIL #1 Exh. 376; Doc. 299-180; Bates P00000035044- P00000035115, at P00000035158].

⁴⁶¹ U.S. EPA, EPA 430-F-16-055, *Climate Change and the Health of Children* (May 2016). [MIL #1 Exh. 340/356; Doc. 299-144/299-160; Bates P00000026353- P00000026356, at P00000026353].

⁴⁶² Doc. 341-303 at P00000070570.

disorders.”⁴⁶³

618. In the 2016 report *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, the U.S. Global Change Research Program made the following statement: “Nearly 6.8 million children in the United States are affected by asthma, making it a major chronic disease of childhood.”⁴⁶⁴

619. The federal government has never set enforceable climate stabilization targets for atmospheric CO₂ parts per million concentrations.

620. The federal government has never set enforceable climate stabilization targets for temperatures above pre-industrial temperatures.

621. Current actions by the United States will not achieve global atmospheric CO₂ levels of 350 ppm by the end of the century. Answer ¶ 261.

622. According to Dr. C. Mark Eakin, Coordinator for NOAA’s Coral Reef Watch program, NOAA believes, as “the result of scientific investigations, analysis, and conclusions that the 350 parts per million was near the upper limit of what allowed corals reefs to grow and continue in a healthy manner,” but it has not set a threshold target of atmospheric concentrations of carbon dioxide.⁴⁶⁵

623. On September 12, 1986, the Senate Committee on Environment and Public Works sent a letter to Lee Thomas, Administrator of the EPA, that made the following statement: “The purpose of this letter is to formally request that EPA undertake two studies on climate change due to the greenhouse effect and submit them to Congress no later than March 31, 1988.”⁴⁶⁶

⁴⁶³ Doc. 341-303 at P00000070570.

⁴⁶⁴ Doc. 341-303 at P00000070428.

⁴⁶⁵ Mark Eakin Deposition at 32–33:22–5; 79–80:24–13.

⁴⁶⁶ Doc. 341-179 at P00000059785.

624. On September 12, 1986, the Senate Committee on Environment and Public Works sent a letter to Lee Thomas, Administrator of the EPA, that made the following statements: “One of the studies we are requesting should examine the health and environmental effects of climate change. This study should include, but not be limited to, the potential impacts on agriculture, forests, wetlands, human health, rivers, lakes and estuaries as well as other ecosystems and social impacts.”⁴⁶⁷

625. On September 12, 1986, the Senate Committee on Environment and Public Works sent a letter to Lee Thomas, Administrator of the EPA, that made the following statements: “The other study should include an examination of the policy options that, if implemented, would stabilize current levels of atmospheric greenhouse gas emissions. This study should address: the need for and implications of significant changes in energy policy, including energy efficiency and development of alternatives to fossil fuel; reductions in the use of CFC’s; ways to reduce other greenhouse gases such as methane and nitrous oxides; as well as the potential for and effects of reducing deforestation and increasing reforestation efforts. It should include a series of policy options and recommendations for concrete steps to be taken along with a discussion of the potential effectiveness of each for limiting climate change. Since the United States must take a leadership role in addressing these global problems, the policy options that you develop should include a specific plan for what the United States can do to stabilize its share of greenhouse gas emissions as well as a plan for helping other nations to achieve comparable levels of control.”⁴⁶⁸

626. On December 23, 1986, after three days of hearings on the “greenhouse effect,” the Senate Committee on Environment and Public Works sent a letter to Dr. John Gibbons,

⁴⁶⁷ Doc. 341-179 at P00000059786.

⁴⁶⁸ Doc. 341-179 at P00000059786.

Executive Director of the U.S. Congress Office of Technology Assessment that made the following statement: “The testimony convincingly portrayed a fundamentally altered planet, with shifts in ocean circulation and climate zones; altered precipitation and storm patterns; more frequent and extreme weather events such as droughts, monsoons, and lowland floods. Individually and collectively, these changes bring about others, ranging from disruption of forest, crop, and ocean productivity to shifts in populations.”⁴⁶⁹

627. On December 23, 1986, after three days of hearings on the “greenhouse effect,” the Senate Committee on Environment and Public Works sent a letter to Dr. John Gibbons, Executive Director of the U.S. Congress Office of Technology Assessment that made the following statement: “We are deeply troubled by the prospect of such a rapid and unprecedented change in the composition of the atmosphere and its implications for the human and natural worlds. It may be necessary to act soon to at least slow these trends or, perhaps, halt them altogether.”⁴⁷⁰

628. On December 23, 1986, after three days of hearings on the “greenhouse effect,” the Senate Committee on Environment and Public Works sent a letter to Dr. John Gibbons, Executive Director of the U.S. Congress Office of Technology Assessment that made the following statement: “We therefore request that the Office of Technology Assessment undertake a study for the Committee on Environment and Public Works of policy options that, if enacted, could lead to the stabilization and minimization of greenhouse gases in the atmosphere.”⁴⁷¹

⁴⁶⁹ Letter to John Gibbons, Executive Director of U.S. Congress Office of Technology Assessment (Dec. 23, 1986) (to be filed with Plaintiffs’ Third Motion *in Limine*).

⁴⁷⁰ Letter to John Gibbons, Executive Director of U.S. Congress Office of Technology Assessment (Dec. 23, 1986) (to be filed with Plaintiffs’ Third Motion *in Limine*).

⁴⁷¹ Letter to John Gibbons, Executive Director of U.S. Congress Office of Technology Assessment (Dec. 23, 1986) (to be filed with Plaintiffs’ Third Motion *in Limine*).

629. In a letter from Frederick Bernthal of the National Science Foundation to IPCC Chairman Bert Bolin dated July 5, 1990, Mr. Bernthal made the following statement: “Stabilization of atmospheric carbon dioxide concentrations can be achieved by either a 60-80% reduction in anthropogenic emissions, or an increase in natural sinks by 2-3%.”⁴⁷²

630. In December 1990, the EPA submitted a report to Congress entitled *Policy Options for Stabilizing Global Climate*, which “present[ed] possible future scenarios of greenhouse gas emissions to the year 2100 depending on the level of response as well as many other independent factors. The results demonstrate[d] that greenhouse gas emissions can be effectively reduced.”⁴⁷³

631. In its December 1990 report to Congress entitled *Policy Options for Stabilizing Global Climate*, the EPA made the following statement: “The adoption of policies to limit emissions on a global basis, such as simultaneous pursuit of energy efficiency, non-fossil energy sources, reforestation, the elimination of CFCs and other measures, could reduce the rate of warming during the 21st century by 60% or more. Even under these assumptions, the Earth could ultimately warm by 1-4°C or more relative to pre-industrial times. Extremely aggressive policies to reduce emissions would be necessary to ensure that total warming is less than 2°C.”⁴⁷⁴

632. In the Office of Technology Assessment’s (OTA) 1991 report to Congress *Changing by Degrees: Steps to Reduce Greenhouse Gases*, the OTA made the following statements: “[T]here is debate here as to whether and when a freeze or a 20-percent reduction in U.S. greenhouse gas emissions could be achieved in the near-term. A 20-percent reduction in U.S. CO₂ emissions

⁴⁷² Doc. 341-201 at P00000061321.

⁴⁷³ U.S. EPA, *Policy Options for Stabilizing Global Climate* xxiii (1989). [MIL #1 Exh. 335/351; Doc. 299-139/299-155; Bates P00000007909- P00000008481, at P00000007930].

⁴⁷⁴ U.S. EPA, *Policy Options for Stabilizing Global Climate* VI-I (1989). [MIL #1 Exh. 335/351; Doc. 299-139/299-155; Bates P00000007909- P00000008481, at P00000008308].

would represent a 3-percent decline in current worldwide emissions of CO₂ and less than a 2-percent decline in current worldwide emissions of all greenhouse gases. More importantly, however, even if a 20-percent cut by all developed Nations could be achieved, it would not be enough to stabilize the atmosphere at today's level, let alone to reduce greenhouse gases to pre-industrial levels. To stabilize the atmosphere, the [IPCC and EPA] suggest, would require much more—up to an 80-percent global reduction in CO₂ emissions from current levels as well as significant reductions in the other greenhouse gases. To achieve this under the combined pressures of economic and population growth, nonfossil fuel technologies such as solar or nuclear power would be needed to replace much of today's fossil fuel use.”⁴⁷⁵

633. In 1991, in its Twenty-Third Annual Report, the CEQ made the following statements: “The United States presented initial elements of its national action plan at negotiating sessions for the U.N. Framework Convention on Climate Change in 1991 and added further measures in May 1992. These actions will limit net greenhouse gas emissions in the year 2000 to 6-11 percent below baseline projections, a limited increase of 1-6 percent above 1990 levels.”⁴⁷⁶

634. In its April 1993 report *Effects of CO₂ and Climate Change on Forest Trees*, the EPA made the following statements: “Due to anthropogenic emissions, the atmospheric concentration of CO₂ is increasing at the rate of about 1.8ppm/year (0.5%/year) [citation omitted]. Using a linear rate of CO₂ increase (1.8 ppm/year) and several multiplicative rates we have projected the increase in atmospheric CO₂ concentrations over time [figure omitted]. . . . To maintain the atmospheric concentration at the present level, CO₂ emissions would need to be reduced

⁴⁷⁵ Office of Technology Assessment, *Changing by Degrees: Steps to Reduce Greenhouse Gases* 5 (1991). [MIL #1 Exh. 22; Doc. 299-211; Bates P00000033358- P00000033716, at P00000033372].

⁴⁷⁶ Doc. 341-219 at P00000062591.

immediately by at least 70% [citation omitted]. This magnitude of reduction is unlikely in the short-term, consequently, we can expect the atmospheric concentration of CO₂ to increase.

However, the magnitude of the expected increase is dependent on various policy options.”⁴⁷⁷

635. In remarks made on October 22, 1997 before the National Geographic Society, President Clinton made the following statements: “[T]he United States proposes at Kyoto that we commit to the binding and realistic target of returning to emissions of 1990 levels between 2008 and 2012. And we should not stop there. We should commit to reduce emissions below 1990 levels in the five-year period thereafter, and we must work toward further reductions in the years ahead We must find new resolve to achieve these reductions, and to do that we simply must commit to binding limits.”; “I also want to emphasize, however, that most of the technologies available for meeting this goal through market mechanisms are already out there - we simply have to take advantage of them.”⁴⁷⁸

636. To fulfill the obligations of the Kyoto Protocol, “the United States would have to cut its emissions by about 7 percent from the 1990 level over the next 10 to 15 years [2008-2012]. Emissions have been steadily increasing since 1990, making that target very ambitious.”⁴⁷⁹

637. In June 2001, President George W. Bush withdrew the United States from the Kyoto Protocol.⁴⁸⁰

638. In an undated U.S. Department of State Memorandum entitled PRD-12/Global Climate Change Policy Decision Paper, the author made the following statements: “The [1992 Framework Convention on Climate Change’s] ultimate objective is to stabilize atmospheric

⁴⁷⁷ Doc. 341-220 at P00000062944.

⁴⁷⁸ Doc. 341-237 at P00000064415, P00000064417.

⁴⁷⁹ Doc. 341-331 at P00000073792; *see also* Doc. 299-216 (Kyoto Protocol).

⁴⁸⁰ Doc. 341-245 at P00000064753.

greenhouse gas concentrations at a level that would prevent dangerous human interference with climate. Because of the long-lifetime of many greenhouse gases in the atmosphere, an effort to stabilize atmospheric concentrations would require dramatic (60 percent) reductions in current greenhouse gas emissions.”⁴⁸¹

639. In 2002, President George W. Bush made the following statements: “My administration is committed to cutting our Nation’s greenhouse gas intensity, how much we emit per unit of economic activity, by 18 percent over the next 10 years. This will set America on a path to slow the growth of our greenhouse gas emissions and, as science justifies, to stop and then reverse the growth of emissions.”⁴⁸²

640. In his *Remarks on Energy and Climate Change* delivered on April 16, 2008, President George W. Bush made the following statements: “I’ve put our Nation on a path to slow, stop, and eventually reverse the growth of our greenhouse gas emissions. In 2002, I announced our first step: to reduce America’s greenhouse gas intensity by 18 percent through 2012. I’m pleased to say that we remain on track to meet this goal even as our economy has grown 17 percent” and announced that “today I’m announcing a new national goal: to stop the growth of U.S. greenhouse gas emissions by 2025.”⁴⁸³

641. “In 2009, President Obama made a pledge that by 2020, America would reduce its greenhouse gas emissions in the range of 17 percent below 2005 levels if all other major

⁴⁸¹ U.S. Dep’t of State, PRD-12/Global Climate Change Policy Decision Paper at 1 (n.d.). [MIL #1 Exh. 129/19; Doc. 270-91; Bates P00000029864-P00000029871, at P00000029864].

⁴⁸² President George W. Bush, Remarks Announcing the Clear Skies and Global Climate Change Initiatives in Silver Spring, Maryland (Feb. 14, 2002), <http://www.presidency.ucsb.edu/ws/index.php?pid=73200> [MIL #1 Exh. 32; Doc. 299-221; Bates P00000034732- P00000034735, at P00000034733].

⁴⁸³ Doc. 341-343 at P00000073856.

economies agreed to limit their emissions as well.”⁴⁸⁴

642. In the 2011 report *Climate Stabilization Targets: Emissions, Concentrations, and Impacts over Decades to Millennia*, the National Research Council made the following statements:

“Future stabilization targets correspond to altered states of Earth’s climate that would be nearly irreversible for many thousands of years, even long after anthropogenic greenhouse gas emissions ceased. The capacity to adapt to slow changes is generally greater than for near-term rapid climate change, but different stabilization levels can lock the Earth and many future generations of humans into large impacts that can occur very slowly over time, such as the melting of the polar ice sheets; similarly, some stabilization levels could prevent such changes.”⁴⁸⁵

643. In the 2011 report *Climate Stabilization Targets: Emissions, Concentrations, and Impacts over Decades to Millennia*, the National Research Council made the following statements: “Moreover, emissions reductions larger than about 80% (relative to whatever peak global emission rate may be reached) are required to approximately stabilize carbon dioxide concentrations for a century or so at any chosen target level (e.g., 450 ppmv, 550 ppmv, 650 ppmv, 750 ppmv, etc.). Even greater reductions in emissions would be required to maintain stabilized concentrations in the longer term.”⁴⁸⁶

644. In the Office of Technology Assessment’s (OTA) 1991 report to Congress *Changing by Degrees: Steps to Reduce Greenhouse Gases*, the OTA made the following statements: “OTA also identified an energy conservation, energy-supply, and forest-management package that can

⁴⁸⁴ Doc. 341-10 at P00000040221.

⁴⁸⁵ Doc. 341-288 at P00000069141.

⁴⁸⁶ Doc. 341-288 at P00000069141.

achieve a 20- to 35-percent emissions reduction. This package is labeled OTA's 'Tough' scenario. While difficult to achieve, major technological breakthroughs are not needed."⁴⁸⁷

645. In its 1991 *National Energy Strategy*, the U.S. Department of Energy developed a strategy for reducing greenhouse gas emissions through "(1) greater use of renewable energy and nuclear power and improved energy efficiency in both the electricity and the transportation sectors; and (2) other actions already taken by the United States (for example, the Clean Air Act Amendments of 1990)." ⁴⁸⁸

646. In its 1991 *National Energy Strategy*, the U.S. Department of Energy made the following statement: "With all of these initiatives, the United States' contribution to potential global warming would, in the National Energy Strategy scenario, remain at or below present levels for the foreseeable future."⁴⁸⁹

647. In its *1997 Report of the Council on Environmental Quality* delivered to Congress, the CEQ reported on the Framework Convention on Climate Change: "The largely voluntary targets created by the 1992 Framework Convention proved insufficient. By the end of 1997, emissions had increased in all but a few developed nations and prospects for meeting the year 2000 target were poor. In July 1996, the United States announced its support for a framework based on "realistic, verifiable, and binding" medium-term targets. In December 1997, at the third Conference of the Parties to the Framework Convention in Kyoto, Japan, more than 160 nations

⁴⁸⁷ Office of Technology Assessment, *Changing by Degrees: Steps to Reduce Greenhouse Gases* 5 (1991). [MIL #1 Exh. 22; Doc. 299-211; Bates P00000033358- P00000033716, at P00000033372].

⁴⁸⁸ Dep't of Energy, *National Energy Strategy: Powerful Ideas for America* 19 (1991) [MIL #1 Exh. 20; Doc. 299-209; Bates P00000033222- P00000033357, at P00000033233].

⁴⁸⁹ Dep't of Energy, *National Energy Strategy: Powerful Ideas for America* 19 (1991) [MIL #1 Exh. 20; Doc. 299-209; Bates P00000033222- P00000033357, at P00000033233].

produced a Protocol to the convention. Under the Protocol, industrialized nations agreed to reduce their aggregate emissions of a “basket” of six greenhouse gases by at least 5 percent below 1990 levels in the period 2008-2012.”⁴⁹⁰

648. Stabilizing atmospheric CO₂ concentrations will require deep reductions in CO₂ emissions. Answer ¶ 208.

649. In its 1979 report *The Good News About Energy*, the Council on Environmental Quality stated it “is concerned about the possible environmental impacts of continuing our historically high rates of energy growth. Projected to the turn of the century, these impacts could prove unacceptable to a major segment of the American people. Spurred by this concern, we undertook several months ago to investigate the potential for achieving lower energy growth in the United States and the implications of this low energy growth for the economy, the environment and government policy.”⁴⁹¹

650. In its 1979 report *The Good News About Energy*, the Council on Environmental Quality made the following statements: “the United States can do well, indeed prosper, on much less energy than has been commonly supposed. The principal basis for this good news is the accumulating evidence that the means are available to wring far more consumer goods and services out of each unit of fuel that we use, whether it be a barrel of oil or a ton of coal or uranium. The technology to increase greatly the productivity of the U.S. energy system is at hand. It is also economical. Improved housing construction can save the homeowner several dollars for every dollar judiciously invested in making the house more energy efficient.

⁴⁹⁰ Council on Env’tl Quality, *Environmental Quality: The 1997 Report of the Council on Environmental Quality* 202–03 (1998), <https://ceq.doe.gov/docs/ceq-reports/ceq-annual-report-1997.pdf> [MIL #1 Exh. 26; Doc. 299-215; Bates P00000034026- P00000032393].

⁴⁹¹ Doc. 341-160 at P00000057240.

Automobile users can economically reduce fuel costs by 50 percent or more by selecting vehicles with more efficient designs. Waste heat recovery systems available to industry today can often provide a 30 to 50 percent per year return on investment.”⁴⁹²

651. In its 1979 report *The Good News About Energy*, the Council on Environmental Quality advised that government initiatives could greatly increase energy productivity to limit the growth of energy usage, including energy pricing at its replacement cost; removing institutional barriers and market imperfections that inhibit cost-effective investments in energy conservation; mandatory requirements for energy efficiency, support for research and development for energy efficiency; and public education regarding energy conservation.⁴⁹³

652. In a 1985 report, the Department of Energy made the following statement: “The citizens of today’s nations have the responsibility for the stewardship of all the Earth, including their actions which may affect its climate. . . . Through research, as we look towards the 21st century, the application of science will ensure that the additional understanding required for nurturing our planet Earth will be developed.”⁴⁹⁴

653. In the 1990 report *Global Warming: Emission Reductions Possible as Scientific Uncertainties Are Resolved*, the U.S. General Accounting Office (now the Government Accountability Office) made the following statement: “EPA agrees that there are many opportunities for reducing the emission of greenhouse gases at low costs, including opportunities to improve energy efficiency and to increase the use of renewable energy.”⁴⁹⁵

⁴⁹² Doc. 341-160 at P00000057240.

⁴⁹³ Doc. 341-160 at P00000057244.

⁴⁹⁴ Dep’t of Energy, *Detecting the Climatic Effects of Increasing Carbon Dioxide*, at vii (1985). [MIL #1 Exh. 15; Doc. 299-204; Bates P00000032917- P00000033145, at P00000032926].

⁴⁹⁵ Doc. 341-204 at P00000061455.

654. In the 1990 report *Global Warming: Emission Reductions Possible as Scientific Uncertainties Are Resolved*, the U.S. General Accounting Office (now the Government Accountability Office) made the following statement: “we found that certain actions, such as improvements in energy efficiency, have benefits in addition to reducing greenhouse gas emissions and could be implemented now.”⁴⁹⁶

655. In the 1990 report *Global Warming: Emission Reductions Possible as Scientific Uncertainties Are Resolved*, the U.S. General Accounting Office (now the Government Accountability Office) made the following statement: “EPA agrees that there are many opportunities for reducing the emission of greenhouse gases at low costs, including opportunities to improve energy efficiency and to increase the use of renewable energy.”⁴⁹⁷

656. In a 1991 report to Congress, *Changing by Degrees: Steps to Reduce Greenhouse Gases*, the Office of Technology Assessment identified the following “major options available or likely to be available for reducing CO₂ emissions in the near-term:” “increasing energy conservation and efficiency in end-use technologies”; “changing use patterns to conserve energy”; and “shifting energy supply away from high CO₂ emitting fuels,” and that “[a]dditional options to offset CO₂ emissions are primarily forestry-related or agricultural.”⁴⁹⁸

657. The 1998 Kyoto Protocol, to which the United States is a signatory (and ratified), provided numerous options for state parties to reduce their carbon emissions, including: “Enhancement of energy efficiency in relevant sectors of the national economy”; “Protection and

⁴⁹⁶ Doc. 341-204 at P00000061455.

⁴⁹⁷ Doc. 341-204 at P00000061457.

⁴⁹⁸ Office of Technology Assessment, *Changing by Degrees: Steps to Reduce Greenhouse Gases* 11 (1991). [MIL #1 Exh. 22; Doc. 299-211; Bates P00000033358- P00000033716, at P00000033379].

enhancement of sinks and reservoirs of greenhouse gases”; “Promotion of sustainable forms of agriculture”; “Research on, and promotion, development and increased use of, new and renewable forms of energy [and] carbon dioxide sequestration technologies”; “Progressive reduction or phasing out of market imperfections, fiscal incentives, tax and duty exemptions and subsidies in all greenhouse gas emitting sectors”; “Encouragement of appropriate reforms in relevant sectors aimed at promoting policies and measures which limit or reduce emissions of greenhouse gases”; “Measures to limit and/or reduce emissions of greenhouse gases . . . in the transport sector”; and “Limitation and/or reduction of methane emissions through recovery and use in waste management, as well as in the production, transport and distribution of energy.”⁴⁹⁹

658. On April 22, 2016, former Secretary of Commerce Penny Pritzker made the following statements: “Our American firms are ideally suited to create the future industries, new business, and advanced supply chains the world needs to meet the climate challenge. Put simply, addressing climate change could be one of the greatest economic opportunities of our time. I am confident that no country is more ready to lead than the United States.”⁵⁰⁰

659. The Department of Transportation has recognized that reducing greenhouse gas “emissions to mitigate climate change will require a long-term, multifaceted transformation of our transportation sector” in the United States.⁵⁰¹

⁴⁹⁹ United Nations, Kyoto Protocol to the United Nations Framework Convention on Climate Change (1998). [MIL #1 Exh. 27; Doc. 299-216; Bates P00000029955- P00000029975, at P00000029957].

⁵⁰⁰ Penny Pritzker, Secretary of Commerce, *Op-Ed: Why Addressing Climate Change Makes Good Business Sense*, Dep’t of Commerce, Office of Pub. Affairs (Apr. 22, 2016 1:05 PM), <https://www.commerce.gov/news/opinion-editorials/2016/04/op-ed-why-addressing-climate-change-makes-good-business-sense>. [MIL #1 Exh. 369; Doc. 299-173; Bates P00000018167- P00000018173, at P00000018170].

⁵⁰¹ U.S. Dep’t of Transp., Research, Development, and Technology Strategic Plan: FY 2017–2021, at 6 (2016), <https://www.transportation.gov/sites/dot.gov/files/docs/USDOT-RD%26T->

660. As early as 1978 and no later than 1980, the Department of Energy was preparing a “Plan for a National Program on Carbon Dioxide, Environment and Society which outlines institutional management and inter-agency coordination required for a national CO₂ program.”⁵⁰²

661. In its September 1983 report, *Can We Delay A Greenhouse Warming*, the EPA made the following statements: “Only a ban on coal instituted by 2000, would effectively slow the rate of temperature change and delay a 2°C change until 2055. A ban on both coal and shale oil would delay it an additional 10 years—until 2065.”⁵⁰³

662. In its September 1983 report *Can We Delay A Greenhouse Warming?*, the EPA made the following statements: “Policy options that involve bans on fossil fuels could significantly reduce the warming by 2100. A ban on coal would reduce the temperature rise in 2100 from 5°C to 3.4°C; when coupled with a ban on shale oil, the total projected warming would be cut in half (to 2.5°C).”⁵⁰⁴

663. In its September 1983 report *Can We Delay A Greenhouse Warming?*, the EPA made the following statements: “A worldwide ban on coal (and thus coal-derived synfuels) instituted by 2000 would reduce temperature change by 30% (from 5°C to 3.5°C). Together, a ban on shale oil and coal would reduce the projected warming in 2100 from 5°C to 2.5°C. Bans on shale oil alone or synfuels alone would be less effective. A 100% worldwide tax would reduce warming by less

Strategic-Plan-Final-011117.pdf. [MIL #1 Exh. 144; Doc. 270-106; Bates P00000026778-P00000026909, at P00000026787].

⁵⁰² US Dep’t of Energy, DOE/EV-0094, 1 Carbon Dioxide Effects Research and Assessment Program: The Global Carbon Cycle and Climatic Effects of Increasing Carbon Dioxide (1980). [MIL #1 Exh. 79; Doc. 270-41; Bates P00000010000- P00000010099, at P00000010005].

⁵⁰³ U.S. EPA, *Can We Delay A Greenhouse Warming?*, at v (September 1983). [MIL #1 Exh. 342; Doc. 299-146; Bates P00000007230- P00000007437, at P00000007245].

⁵⁰⁴ U.S. EPA, *Can We Delay A Greenhouse Warming?* 7-3 (1983). [MIL #1 Exh. 342; Doc. 299-146; Bates P00000007230- P00000007437, at P00000007397].

than 1.0°C in 2100.”⁵⁰⁵

664. In February 1985, the Department of Energy reported that the goal of the agency’s Carbon Dioxide Research Program was “to identify possible policy options for government action in response to effects of increased CO₂.”⁵⁰⁶

665. In its 1991 paper *Policy Implications of Greenhouse Warming*, the National Academy of Sciences’ Committee on Science, Engineering, and Public Policy made the following statements: “This analysis suggests that the United States could reduce its greenhouse gas emissions by between 10 and 40 percent of the 1990 level at very low cost. Some reductions may even be at a net savings if the proper policies are implemented.”⁵⁰⁷

666. In a 1991 report to Congress, the Office of Technology Assessment made the following statements: “financial options . . . such as a carbon tax or fossil fuel energy tax” and “subsidy for renewable energy” are measures to encourage use of nonfossil fuel sources.⁵⁰⁸

667. In a 1992 assessment of the Department of Energy’s National Energy Strategy, the General Accounting Office (now Government Accountability Office) made the following statement: “The Strategy also makes little effort to reflect in energy prices all the costs to society of obtaining and using energy, such as the adverse environmental costs of relying on fossil fuels.”⁵⁰⁹

⁵⁰⁵ U.S. EPA, *Can We Delay A Greenhouse Warming?* vii (1983). [MIL #1 Exh. 342; Doc. 299-146; Bates P00000007230- P00000007437, at P00000007247].

⁵⁰⁶ Michael R. Riches & Frederick A. Koomanoff, Overview of the Department of Energy Carbon Dioxide Research Program, 66 *Am. Meteorological Soc’y* 152 (1985). [MIL #1 Exh. 80; Doc. 270-42; Bates P00000017171- P00000017177, at P00000017171].

⁵⁰⁷ Doc. 341-207 at P00000062194.

⁵⁰⁸ Office of Technology Assessment, *Changing by Degrees: Steps to Reduce Greenhouse Gases* 109 (1991). [MIL #1 Exh. 22; Doc. 299-211; Bates P00000033358- P00000033716, at P00000033475].

⁵⁰⁹ Doc. 341-216 at P00000062314.

668. In 1992, the United States became a party to the United Nations Framework Convention on Climate Change, the stated objective of which was “to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.”⁵¹⁰

669. In an October 21, 1994 draft of an EPA-designed CO₂ cap and trading option sent to Mike Toman of President Clinton’s Council of Economic Advisers, the EPA made the following statements: “A CO₂ cap with emissions trading provides perhaps the most economically efficient mechanism possible for achieving emission reduction goals, irrespective of the level of the target.”⁵¹¹

670. In a memorandum to EPA Administrator Carol M. Browner dated April 10, 1998, EPA General Counsel Johnathan Z. Cannon made the following statements: “EPA’s regulatory authority under the Clean Air Act extends to air pollutants, which, as discussed above, are defined broadly under the Act and include SO₂, NO_x, CO₂, and mercury emitted into the ambient air. EPA has in fact already regulated each of these substances under the Act, with the exception of CO₂. While CO₂ emissions are within the scope of EPA’s authority to regulate, the Administrator has made no determination to date to exercise that authority under the specific criteria provided under any provision of the Act.”⁵¹²

⁵¹⁰ United Nations, United Nations Framework Convention on Climate Change 4 (1992). [MIL #1 Exh. 23; Doc. 299-212; Bates P00000033717- P00000033741, at P00000033721].

⁵¹¹ Doc. 341-224 at P00000063843.

⁵¹² Doc. 31-238 at P00000064425.

671. In remarks made on February 22, 2001 to The Business Council, EPA Administrator Christine Todd Whitman made the following statements: “We will establish mandatory reduction targets for emissions of sulfur dioxide, nitrogen oxide, mercury, and carbon dioxide, but we will also provide market-based incentives, such as carbon reduction credits and emissions trading, to help achieve those reductions.”⁵¹³

672. The Department of the Interior has considered that a fixed, global carbon budget may require purposefully limiting U.S. oil production.⁵¹⁴

673. In July 2012, the FAA released an Aviation Environmental and Energy Policy statement that set a goal of limiting the impact of aircraft CO₂ emissions on the global climate by achieving carbon neutral growth by 2020 compared to 2005, and net reductions of the climate impact from all aviation emissions over the longer term (by 2050).⁵¹⁵

674. In *Domestic Policy Review of Solar Energy*, a 1978 report resulting from a review commissioned by President Carter by more than 30 federal departments and agencies, the Solar Energy Policy Committee wrote: “Widespread use of solar energy is also hindered by Federal and state policies and market imperfections that effectively subsidize competing energy sources. These policies include Federal price controls on oil and gas, a wide variety of direct and indirect subsidies, and utility rate structures that are based on average, rather than marginal costs. Also,

⁵¹³ Doc. 341-243 at P00000064738.

⁵¹⁴ E. Wolvovsky & W. Anderson, U.S. Dep’t of the Interior, Bureau of Ocean Energy Mgmt., BOEM 2016-065, OCS Oil and Natural Gas: Potential Lifecycle Greenhouse Gas Emissions and Social Cost of Carbon 36 (2016), <https://www.boem.gov/OCS-Report-BOEM-2016-065/>. [MIL #1 Exh. 258; Doc. 299-62; Bates P00000024501- P00000024556].

⁵¹⁵ Fed. Aviation Admin., Aviation Environmental and Energy Policy Statement 4 (2012), https://www.faa.gov/about/office_org/headquarters_offices/apl/enviro_n_policy_guidance/policy/media/FAA_EE_Policy_Statement.pdf. [MIL #1 Exh. 187; Doc. 270-149; Bates P00000026466-P00000026474, at P00000026470].

the market system fails to reflect the full social benefits and costs of competing energy sources, such as the costs of air and water pollution. If solar energy were given economic parity with conventional fuels through the removal of the subsidies, its market position would be enhanced.”⁵¹⁶

675. In *Domestic Policy Review of Solar Energy*, a 1978 report resulting from a review commissioned by President Carter by more than 30 federal departments and agencies, the Solar Energy Policy Committee wrote: “Widespread use of solar energy is also hindered by Federal and state policies and market imperfections that effectively subsidize competing energy sources. These policies include Federal price controls on oil and gas, a wide variety of direct and indirect subsidies, and utility rate structures that are based on average, rather than marginal costs. Also, the market system fails to reflect the full social benefits and costs of competing energy sources, such as the costs of air and water pollution. If solar energy were given economic parity with conventional fuels through the removal of the subsidies, its market position would be enhanced.”⁵¹⁷

676. In 1978, the CEQ found that solar could meet a quarter of U.S. energy needs by the year 2000 and that, unlike coal, “solar poses little risk to climate and creates little direct air pollution.”⁵¹⁸

677. In its 1979 report *The Good News About Energy*, the Council on Environmental Quality predicted that, by 2000, renewable energy would consist of 19 quads (over 20% of total U.S.

⁵¹⁶ Doc. 341-499 at P00000112044.

⁵¹⁷ Doc. 341-499 at P00000112044.

⁵¹⁸ Council on Env’tl Quality, *Solar Energy: Progress and Promise 2* (1978) [MIL #1 Exh. 8; Doc. 299-197; Bates P00000030487- P00000030544, at P00000030494].

energy mix), up from 4.2 quads in 1977.⁵¹⁹

678. In an address to Congress on June 20, 1979, President Carter made the following statements: “More than ever before, we can see clearly the dangers of continued excessive reliance on oil for our long-term future security. Our energy problem demands that we act forcefully to diversify our energy supplies, to make maximum use of the resources we have, and to develop alternatives to conventional fuels. Past governmental policies to control the prices of oil and natural gas at levels below their real market value have impeded development and use of solar and renewable resource alternatives. Both price controls and direct subsidies that the government has provided to various existing energy technologies have made it much more difficult for solar and renewable resource technologies to compete.”⁵²⁰

679. In an address to Congress on June 20, 1979, President Carter made the following statements: “The government-wide survey I commissioned concluded that many solar technologies are available and economical today. These are here and now technologies ready for use in our homes, schools, factories, and farms.”⁵²¹

680. In an address to Congress on June 20, 1979, President Carter made the following statements: “We should commit ourselves to a national goal of meeting one fifth—20%—of our energy needs with solar and renewable resources by the end of this century. This goal sets a high standard against which we can collectively measure our progress in reducing our dependence on oil imports and securing our country's energy future. It will require that all of us examine carefully the potential solar and renewable technologies hold for our country and invest in these

⁵¹⁹ Doc. 341-160 at P00000057267.

⁵²⁰ Doc. 341-162 at P00000057519.

⁵²¹ Doc. 341-162 at P00000057520.

systems wherever we can.”⁵²²

681. In May 1990, the Department of Energy’s Solar Energy Research Institute (now the National Renewable Energy Lab) made the following statements: “Appropriate technology is available, but the optimum system (e.g., wind, solar or nuclear energy for electric power, solar thermal energy for domestic hot water, etc.) depends on geographic location and end use.”⁵²³

682. In May 1990, the Department of Energy’s Solar Energy Research Institute (now the National Renewable Energy Lab) made the following statements: “In view of the long lead time required for conservation and renewable technologies to be brought into the energy infrastructure on a large scale, policies that can be justified on their own merit and also reduce greenhouse-gas emissions should be initiated as soon as possible. There is a risk in delaying such actions since the costs of reducing CO₂ emissions are likely to increase if the urgency for their implementation should grow.”⁵²⁴

683. In the September 1990 report *The Economics of Long-Term Global Climate Change: A Preliminary Assessment*, the Department of Energy made the following statements: “It is important to recognize, however, that elimination of coal-mining jobs gradually over time does not necessarily imply increased general unemployment, in the case of an expanding economy though there may be persistent regional problems. A shift to other energy sources would create jobs.”⁵²⁵

684. Until 2010, there was not a single commercial solar energy project on or under

⁵²² Doc. 341-162 at P00000057520.

⁵²³ Doc. 341-198 at P00000061264, P00000061289.

⁵²⁴ Doc. 341-198 at P00000061264, P00000061289.

⁵²⁵ Doc. 341-203 at P00000061374.

development on federal lands.⁵²⁶

685. In early 1989, the Department of Energy's Assistant Secretary for Environment, Safety and Health initiated a study by the National Academy of Sciences and the National Academy of Engineering to evaluate the potential of alternative energy systems to affect greenhouse gas emissions and to evaluate the current state of research and development of these systems.⁵²⁷

686. In a 1997 study, the Department of Energy made the following statement: "a vigorous national commitment to develop and deploy energy-efficient and low-carbon technologies has the potential to restrain the growth in U.S. energy consumption and carbon emissions such that levels in 2010 are close to those in 1997 (for energy) and 1990 (for carbon)."⁵²⁸

687. In its May 2011 Strategic Plan, the Department of Energy made the following statements: "American leadership in the clean energy revolution is essential to future economic competitiveness. Regrettably, the United States has lost its lead in many of the energy technologies that we developed."⁵²⁹

688. In its May 2011 Strategic Plan, the Department of Energy made the following statements: "With the right government policies and effective RDD&D programs, the United States can lead

⁵²⁶ Dep't of the Interior, New Energy Frontier, at DH-30 (2012), https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/FY2013_BIB_DH027.pdf. [MIL #1 Exh. 259; Doc. 299-63; Bates P00000020743- P00000020756, at P00000020746].

⁵²⁷ U.S. Dep't of Energy, Office of Technology Policy, Office of Policy, Planning and Analysis, Inventory of DOE Global Climate Change Programs 1989-1990 Update (March 1989). [Doc. 341-581 at P00000119794].

⁵²⁸ Dep't of Energy, Office of Energy Efficiency and Renewable Energy, Scenarios of U.S. Carbon Reductions: Potential Impacts of Energy Technologies by 2010 and Beyond (1997), <https://www.osti.gov/biblio/814844-scenarios-carbon-reductions-potential-impacts-energy-efficient-low-carbon-technologies-beyond> [MIL #1 Exh. 30; Doc. 299-219; Bates P00000033773- P00000034025, at P00000033776].

⁵²⁹ U.S. Dep't of Energy, Strategic Plan (2011). [MIL #1 Exh. 105; Doc. 270-67; Bates P00000029877- P00000029936, at P00000029889].

the clean energy revolution.”⁵³⁰

689. On January 12, 2017, at his nomination hearing before the U.S. Senate Committee on Armed Services to be Secretary of the Department of Defense, James Mattis made the following statement in response to the question, “If confirmed, what will you do to unleash the Department from the tether of fuel?”: “The Department’s acquisition process should explore alternate and renewable energy sources that are reliable, cost effective, and can relieve the dependence of deployed forces on vulnerable fuel supply chains to better enable our primary mission to win in conflict. The purpose of such efforts should be to increase the readiness and reach of our forces.”⁵³¹

690. In its 2014 *Strategic Plan*, the Department of Energy made the following statement: “Although domestic oil production has increased to the extent that in 2012 net imports of petroleum fell to their lowest level in nearly 20 years, we must continue our efforts to develop alternative fuels and vehicles as we are far from decoupling our economy from the global oil market.”⁵³²

691. The Department of Interior has identified sites on public land suitable for renewable energy development.⁵³³

⁵³⁰ U.S. Dep’t of Energy, *Strategic Plan* (2011). [MIL #1 Exh. 105; Doc. 270-67; Bates P00000029877- P00000029936, at P00000029889].

⁵³¹ Nomination Hearing: James Mattis, Secretary of Defense, Committee on Armed Services, U.S. Senate, One Hundred Fifteenth Congress, First Session (January 12, 2017), https://www.armed-services.senate.gov/hearings/17-01-12-confirmation-hearing_-mattis. [MIL #1 Exh. 319; Doc. 299-123; Bates P00000019570- P00000019625, at P00000019623].

⁵³² U.S. Dep’t of Energy, DOE/CF-0067, *Strategic Plan 2014-2018* (2014), https://www.energy.gov/sites/prod/files/2014/04/f14/2014_dept_energy_strategic_plan.pdf. [MIL #1 Exh. 106; Doc. 270-68; Bates P00000011148- P00000011179, at P00000011150].

⁵³³ Dep’t of the Interior, *New Energy Frontier*, at DH-30 to DH-32 (2012),

692. Electric vehicles typically use less than half the energy and produce fewer than half the CO₂ emissions than the average gasoline-powered vehicle, even when upstream emissions from power generation are taken into account.⁵³⁴

693. The Department of Transportation has estimated that in 2025, the net energy security benefits of plug-in electric vehicles “would be approximately \$1,000–\$2,000 per vehicle, in 2013 dollars, reflecting the combined benefits of reduced oil prices and protection from the negative impacts of oil supply disruption”.⁵³⁵

694. The Department of Transportation has recognized that electric vehicles are capable of serving the needs of almost 99% of household vehicle trips.⁵³⁶

695. More than half a million electric vehicles were sold between 2012 and 2016 in the United States.⁵³⁷

696. In 2016, the Department of Transportation reported that since 1990, hybrid electric

https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/FY2013_BIB_DH027.pdf. [MIL #1 Exh. 259; Doc. 299-63; Bates P00000020743- P00000020756, at P00000020746-P00000020748].

⁵³⁴ Siddiq Khan & Shruti Vaidyanathan, Strategies for Integrating Electric Vehicles into the Grid 1 (2018); U.S. Dep’t of Transp., Fed. Highway Admin., FHWA-HEP-15-021, Feasibility and Implications of Electric Vehicle (EV) Deployment and Infrastructure Development 1 (2015), https://www.fhwa.dot.gov/environment/sustainability/energy/publications/ev_deployment/fhwahp15021.pdf. [MIL #1 Exh. 160; Doc. 270-122; Bates P00000027264- P00000027313, at P00000027271].

⁵³⁵ U.S. Dep’t of Transp., Fed. Highway Admin., FHWA-HEP-15-021, Feasibility and Implications of Electric Vehicle (EV) Deployment and Infrastructure Development viii (2015), https://www.fhwa.dot.gov/environment/sustainability/energy/publications/ev_deployment/fhwahp15021.pdf. [MIL #1 Exh. 161; Doc. 270-123; Bates P00000026517- P00000026757, at P00000026529].

⁵³⁶ U.S. Dep’t of Transp., Fed. Highway Admin., FHWA NHTS Brief: Electric Vehicle Feasibility 1 (2016), <https://nhts.ornl.gov/briefs/EVFeasibility20160701.pdf>. [MIL #1 Exh. 163; Doc. 270-125; Bates P00000028370- P00000028373, at P00000028370].

⁵³⁷ Siddiq Khan & Shruti Vaidyanathan, Strategies for Integrating Electric Vehicles into the Grid 1 (2018). [MIL #1 Exh. 164/160/162; Doc. 270-126; Bates P00000027264- P00000027313, at P00000027271].

vehicles and electric vehicles have grown to nearly 3% of the U.S. market for new vehicles but, with petroleum prices low, the sale of these alternative fueled vehicles in the United States has decreased and sales of pickup trucks and SUVs have increased.⁵³⁸

697. In its October 1967 report, *The Automobile and Air Pollution: A Program for Progress*, the U.S. Department of Commerce made the following statement: “The Federal Government should continue to set standards for all harmful automotive emissions, and realistic timetables for the achievement of such standards.”⁵³⁹

698. In the December 1990 report to Congress, *Policy Options for Stabilizing Global Climate*, the EPA made the following statement: “50 mile per gallon automobiles are technically feasible with currently available technology. Further improvements could increase fuel efficiency to more than 80 miles per gallon.”⁵⁴⁰

699. In the September 1990 report *The Economics of Long-Term Global Climate Change: A Preliminary Assessment*, the Department of Energy made the following statements: “Further increases in the CAFE standard are technically feasible and would likely reduce CO₂ emissions; estimates of the costs of such increases are controversial.”⁵⁴¹

700. In its 1992 report *Energy Policy: Options to Reduce Environmental and Other Costs of Gasoline Consumption*, the General Accounting Office (now Government Accountability Office) made the following statement: “Higher CAFE standards combined with a fee-rebate program or

⁵³⁸ U.S. Dep’t of Transp., Bureau of Transp. Statistics, Transportation Statistics Annual Report 175 (2016), https://www.bts.gov/sites/bts.dot.gov/files/docs/TSAR_2016.pdf. [MIL #1 Exh. 165; Doc. 270-127; Bates P00000026910- P00000027155, at P00000027096].

⁵³⁹ Doc. 341-151 at P00000054207.

⁵⁴⁰ U.S. EPA, Policy Options for Stabilizing Global Climate VI-1 (1990). [Doc. 299-139/299-155; Bates P00000007909- P00000008481, at P00000008120].

⁵⁴¹ Doc. 341-203 at P00000061376.

a higher gasoline tax could increase the demand for more fuel-efficient vehicles.”⁵⁴²

701. In its 1992 report *Energy Policy: Options to Reduce Environmental and Other Costs of Gasoline Consumption*, the General Accounting Office (now Government Accountability Office) made the following statements: “Many economists believe that the price of gasoline does not sufficiently reflect the external costs of gasoline consumption. The Council of Economic Advisors reported to the President last year that national security and environmental considerations are given inadequate weight by the private market forces that determine energy prices. The National Academy of Sciences suggested a policy of increasing fuel prices to internalize associated costs and provide a market signal ‘to channel consumer behavior in a direction consistent with societal objectives.’”⁵⁴³

702. In its 1992 report *Energy Policy: Options to Reduce Environmental and Other Costs of Gasoline Consumption*, the General Accounting Office (now Government Accountability Office) made the following statements: “higher gasoline tax, a tax on vehicles’ tailpipe emissions, subsidies for alternative fuels, higher fuel economy standards for new vehicles, a fee-rebate program whereby consumers receive a rebate for the purchase of new vehicles that operate more efficiently and pollute less and pay a surcharge for the purchase of vehicles that are less fuel-efficient and pollute more, and a program that financially rewards people who voluntarily scrap older vehicles.”⁵⁴⁴

703. The Department of Transportation’s NHTSA establishes fuel economy standards. Answer ¶ 189.

⁵⁴² Doc. 341-218 at P00000062413.

⁵⁴³ Doc. 341-218 at P00000062375.

⁵⁴⁴ Doc. 341-218 at P00000062375.

704. The Department of Transportation has established fuel economy standards and fuel efficiency standards, and the EPA has established standards for emissions of greenhouse gases (including CO₂) from certain new motor vehicles and engines. Answer ¶ 189.

705. Fuel economy standards and fuel efficiency standards can reduce CO₂ emissions. Answer ¶ 189.

706. The Department of Transportation has acknowledged that when fuel efficiency standards are raised, automakers respond by creating more fuel-efficient vehicles “which improves our nation’s energy security and saves consumers money at the pump, while also reducing greenhouse gas emissions.”⁵⁴⁵

707. Fuel economies of passenger cars and light trucks have closely tracked the CAFE standards since the CAFE standards took effect in 1978.⁵⁴⁶

708. A vehicle’s fuel economy is affected by tire rolling resistance, therefore, fuel saving could be achieved by reducing tire rolling resistance.⁵⁴⁷

709. Defendant Department of Transportation has stated that new fuel efficiency standards “can achieve significant reductions in carbon emissions from transportation by decreasing the

⁵⁴⁵ Corporate Average Fuel Economy (CAFE) Standards, U.S. Dep’t of Transp., <https://www.transportation.gov/mission/sustainability/corporate-average-fuel-economy-cafe-standards> (last visited Apr. 25, 2018). [MIL #1 Exh. 151; Doc. 270-113; Bates P00000028468-P00000028470, at P00000028468].

⁵⁴⁶ U.S. Dep’t of Transp., Bureau of Transp. Statistics, Transportation Statistics Annual Report 183 (2016), https://www.bts.gov/sites/bts.dot.gov/files/docs/TSAR_2016.pdf. [MIL #1 Exh. 155; Doc. 270-117; Bates P00000026910- P00000027155, at P00000027104].

⁵⁴⁷ U.S. Dep’t of Transp., Nat’l Highway Traffic Safety Admin., DOT HS 811 119, NHTSA Tire Fuel Efficiency Consumer Information Program Development: Phase 1 – Evaluation of Laboratory Test Protocols 1 (2009), https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/fmvss/Laboratory_Test_Protocols.pdf. [#1 Exh. 166; Doc. 270-128; Bates P00000026357- P00000026460, at P00000026374].

amount of carbon consumed per mile of travel.”⁵⁴⁸

710. The Department of Agriculture, through agencies including the Forest Service, provides assistance in managing billions of acres of farm, ranch, and forest lands through public and private partnerships.⁵⁴⁹

711. In the September 1990 report *The Economics of Long-Term Global Climate Change: A Preliminary Assessment*, the Department of Energy made the following statements: “A number of changes in agricultural programs that would have other benefits can be expected to assist in reducing emission of greenhouse gases. These include reducing commodity price support levels, encouraging additional tree planting, and conservation cross compliance.”⁵⁵⁰

712. In its 1995 report *Climate Change Mitigation Strategies in the Forest and Agriculture Sectors*, the EPA made the following statement: “Because vegetation and soil contain about three times as much carbon as the atmosphere, terrestrial ecosystems offer an opportunity to absorb

⁵⁴⁸ U.S. Dep’t of Transp., Transportation’s Role in Reducing U.S. Greenhouse Gas Emissions: Volume 1 Synthesis Report ES-9 (2010) (report to Congress). [MIL #1 Exh. 132; Doc. 270-94; Bates P00000028491- P00000029095, at P00000028515].

⁵⁴⁹ Jane A. Leggett, Cong. Research Serv., R43915, *Climate Change Adaptation by Federal Agencies: An Analysis of Plans and Issues for Congress* 34 (2015), <http://nationalaglawcenter.org/wp-content/uploads/assets/crs/R43915.pdf>. [MIL #1 Exh. 39; Doc. 270-1; Bates P00000004358- P00000004461, at P00000004396]; U.S. Dep’t of Agric., Forest Serv., FS-957b, *National Roadmap for Responding to Climate Change* 6 (2011), <https://www.fs.fed.us/climatechange/pdf/Roadmapfinal.pdf>. [MIL #1 Exh. 47; Doc. 270-9; Bates P00000000986- P00000001017, at P00000000993]; U.S. Dep’t of Agric., Forest Serv., *The U.S. Forest Service – An Overview* 9 (2008), https://www.fs.fed.us/sites/default/files/media/types/publication/field_pdf/USFS-overview0106MJS.pdf. [MIL #1 Exh. 42; Doc. 270-4; Bates P00000005071- P00000005122]; U.S. Dep’t of Agric., Forest Serv., FS-383, *Land Areas of the National Forest System* 1 (2012), https://www.fs.fed.us/land/staff/lar/LAR2011/LAR2011_Book_A5.pdf. [MIL #1 Exh. 41; Doc. 270-3; Bates P00000001268- P00000001532]; Carol Hardy Vincent et al., Cong. Research Serv., R42346, *Federal Land Ownership: Overview and Data* (2017), <https://fas.org/sgp/crs/misc/R42346.pdf>. [MIL #1 Exh. 43/191/193/269; Doc. 270-5; Bates P00000005006- P00000005033].

⁵⁵⁰ Doc. 341-203 at P00000061376.

and store (sequester) a significant additional amount of CO₂ from the atmosphere.”⁵⁵¹

713. In September 1990, EPA issued a report, *Response and Feedbacks of Forest Systems to Global Climate Change*, EPA/600/3-90/080, that made the following statement: “Forests and other terrestrial components of the biosphere, such as agroecosystems, can be managed to sequester carbon and contribute to mitigation efforts.”⁵⁵²

714. In April 1991, EPA issued a report, *Sequestering Carbon in Soils: A Workshop to Explore the Potential for Mitigating Global Climate Change*, EPA 600/3-91/031 that made the following statement: “Currently there is about 1.5 billion hectares of cropland (World Resources Institute, 1990). Conservation tillage could be implemented on many of these soils, thereby reducing soil carbon losses and converting these soils from sources of atmospheric carbon to sink. Additionally, with proper management carbon could be restored to many other carbon-depleted soils. In the tropics, there is an estimated 865 million hectares of deforested and abandoned land that could be is [sic] potentially available for afforestation (Houghton, 1990). If reforested, these systems would withdraw approximately 1.5 Pg carbon a year from the atmosphere sequestering it in soils and vegetation over the next century.”⁵⁵³

715. In February 1992, EPA issued a report, *Global Methane Emissions from Livestock and Poultry Manure*, EPA/400/1-91/048 that made the following statement: “As part of the overall

⁵⁵¹ EPA & USFS, EPA 230-R-95-002, *Climate Change Mitigation Strategies in the Forest and Agriculture Sectors* ES-1 (1995). [MIL #1 Exh. 78; Doc. 270-40; Bates P0000000001-P0000000084, at P0000000015].

⁵⁵² U.S. EPA, EPA/600/3-90/080, *Response and Feedbacks of Forest Systems to Global Climate Change* xii (1990). [MIL #1 Exh. 336/352; Doc. 299-140/299-156; Bates P00000025185-P00000025353, at P00000025197].

⁵⁵³ U.S. EPA, EPA 600/3-91/031, *Sequestering Carbon in Soils: A Workshop to Explore the Potential for Mitigating Global Climate Change* v (1991). [MIL #1 Exh. 337/353; Doc. 299-141/299-157; Bates P00000025927-P00000026026, at P00000025936].

strategy to identify options for stabilizing global methane concentrations, emissions inventories are being prepared and opportunities for reducing methane emissions are being identified and evaluated by the U.S. Environmental Protection Agency and others.”⁵⁵⁴

716. In the 2000 report *The Impact of Climate Change on America’s Forests: A Technical Document Supporting the 2000 USDA Forest Service RPA Assessment*, the U.S. Forest Service made the following statements: “Future climate coincident with changes in fire management practices and possible forest decline or dieback could bring longer fire seasons and potentially more frequent and larger fires in all forest zones (even those that do not currently support fire).”⁵⁵⁵

717. On June 26, 1969, the U.S. Bureau of the Budget (the precursor to OMB) released Circular A-94 that prescribes the discount rates and procedures for all government projects and programs with measurable costs or benefits extending 3 years or more.⁵⁵⁶

718. On March 27, 1972, the OMB issued a Revised Circular A-94 that prescribes a “10 percent” discount rate “to be used for evaluations of programs and projects subject to the guidance of this Circular.”⁵⁵⁷

⁵⁵⁴ Doc. 299-341 at P00000026035.

⁵⁵⁵ Doc. 341-240 at P00000064687.

⁵⁵⁶ U.S. Bureau of the Budget, Circular A-94, “Discount Rates and Procedures to Be Used in Evaluating Deferred Costs and Benefits” (June 26, 1969), [Dkt. 341-578; Bates P00000119244-P00000119250].

⁵⁵⁷ U.S. Office of Management and Budget, Circular A-94, “Discount Rates to Be Used in Evaluating Time-distributed Costs and Benefits” 4 (Mar. 27, 1972), <https://stacks.stanford.edu/file/druid:rv089pp2037/OMBCircular94.pdf>. [Dkt. 341-510; Bates P00000113432-P00000113437].

719. On March 27, 1972, the OMB issued a Revised Circular A-94 that makes the following statement: “The prescribed discount rate of 10 percent represents an estimate of the average rate of return on private investment, before taxes and after inflation.”⁵⁵⁸

720. In 1992, OMB issued a new Circular A-94, “provid[ing] specific guidance on the discount rates to be used in evaluating Federal programs whose benefits and costs are distributed over time.”⁵⁵⁹

721. In 1992, OMB issued a new Circular A-94 that includes the following statement “[t]his rate [discount rate of 7 percent] approximates the marginal pretax rate of return on an average investment in the private sector in recent years.”⁵⁶⁰

722. On January 11, 1996, OMB issued a “best practices” document “for preparing the economic analysis of regulatory actions required by the Executive Order [12866, Regulatory Planning and Review],” which includes the following statements:

Intergenerational analysis. Comparisons of benefits and costs across generations raise special questions about equity, in addition to conventional concerns about efficiency. One approach to these questions is to follow the discounting procedures described above and to address equity issues explicitly rather than through modification of the discount rate. An alternative approach is to use a special social rate of time preference when conducting intergenerational analyses in order to properly value changes in consumption in different generations. For example, one philosophical perspective is that the social marginal rate of substitution between the wellbeing of members of successive generations may be less than the individual rate of time preference, and that future generations should not have their expected welfare discounted just because they come later in time. Instead, this view

⁵⁵⁸ *Id.*

⁵⁵⁹ U.S. Office of Management and Budget, Circular A-94, “Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs” 3 (1992) (rescinding and replacing the 1972 OMB Circular No. A-94), <https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A94/a094.pdf>. [Dkt. 341-398; Bates P00000090000-P00000090021].

⁵⁶⁰ *Id.* at 9.

suggests that discounting should reflect only the growth of per capita consumption and the corresponding decrease in marginal utility over time.⁵⁶¹

723. On September 17, 2003, OMB released Circular A-4, “guidance to Federal agencies on the development of regulatory analysis,” which replaced the 1996 “best practices” guidance.⁵⁶²

724. The OMB Circular A-4 includes the following statement: “As a default position, OMB Circular A-94 states that a real discount rate of 7 percent should be used as a base-case for regulatory analysis. The 7 percent rate is an estimate of the average before-tax rate of return to private capital in the U.S. economy.”⁵⁶³

725. The OMB Circular A-4 includes the following statement: “For regulatory analysis, you should provide estimates of net benefits using both 3 percent and 7 percent.”⁵⁶⁴

726. In a section titled “Intergenerational Discounting,” OMB Circular A-4 includes the following statement: “Special ethical considerations arise when comparing benefits and costs across generations. Although most people demonstrate time preference in their own consumption behavior, it may not be appropriate for society to demonstrate a similar preference when deciding between the well-being of current and future generations. Future citizens who are affected by such choices cannot take part in making them, and today’s society must act with some consideration of their interest.”⁵⁶⁵

⁵⁶¹ U.S. Office of Management and Budget, “Economic Analysis of Federal Regulations Under Executive Order 12866,” (Jan. 11, 1996), https://obamawhitehouse.archives.gov/omb/inforeg_riaguide/. [Dkt. 341-540; Bates P00000114927-P00000114947].

⁵⁶² U.S. Office of Management and Budget, Circular A-4 “Regulatory Analysis” 1 (Sept. 17, 2003), <https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf>. [Dkt. 341-599; Bates P00000122233-P00000122280].

⁵⁶³ *Id.* at 33.

⁵⁶⁴ *Id.* at 34.

⁵⁶⁵ *Id.* at 35.

727. In a section titled “Benefit-Cost Analysis,” OMB Circular A-4 includes the following statement: “When important benefits and costs cannot be expressed in monetary units, [benefit-cost analysis] is less useful, and it can even be misleading, because the calculation of net benefits in such cases does not provide a full evaluation of all relevant benefits and costs.”⁵⁶⁶

728. In a section titled “Valuation of Reductions in Health and Safety Risks to Children,” OMB Circular A-4 includes the following statement: “The valuation of health outcomes for children and infants poses special challenges. It is rarely feasible to measure a child's willingness to pay for health improvement and an adult's concern for his or her own health is not necessarily relevant to valuation of child health. For example, the wage premiums demanded by workers to accept hazardous jobs are not readily transferred to rules that accomplish health gains for children.”⁵⁶⁷

IV. CLAIMS AND DEFENSES

For the Plaintiffs:

1. By causing and contributing to dangerous climate change through their affirmative aggregate acts and policies with respect to fossil fuels and the national energy system, Defendants have violated Plaintiffs’ substantive due process right to a stable climate system capable of sustaining human life and liberty guaranteed by the Fifth Amendment of the U.S. Constitution. Defendants’ aggregate acts and policies with respect to fossil fuels and the national energy system cannot and do not operate to secure, and are not narrowly tailored to achieve, a more compelling state interest than Plaintiffs’ rights, nor can such aggregate acts and omissions satisfy intermediate scrutiny, or any other level of scrutiny, including rational

⁵⁶⁶ *Id.* at 10.

⁵⁶⁷ *Id.* at 31.

basis review;

2. By causing and contributing to dangerous climate change through their affirmative aggregate acts and policies with respect to fossil fuels and the national energy system, Defendants have violated Plaintiffs' substantive due process rights to life, liberty, and property, as well as previously recognized unenumerated substantive due process rights, including rights to bodily integrity and personal security; the right to travel; and the right to family autonomy, including the right to safely raise a family, to keep one's family together, and to learn and transmit one's spiritual and cultural heritage and traditions, in each case guaranteed by the Fifth Amendment of the U.S. Constitution. Defendants' aggregate acts and policies with respect to fossil fuels and the national energy system cannot and do not operate to secure, and are not narrowly tailored to achieve, a more compelling state interest than Plaintiffs' rights, nor can such aggregate acts and omissions satisfy intermediate scrutiny, or any other level of scrutiny, including rational basis review;
3. By knowingly engaging in historic and ongoing conduct that has placed Plaintiffs in a position of danger, Defendants have knowingly exposed, with deliberate indifference to their safety, each of the Plaintiffs to dangers they would not have otherwise faced such that Defendants' ongoing actions and omissions shock the conscience and violate Plaintiffs' substantive due process rights on a state-created danger basis as guaranteed by the Fifth Amendment of the U.S. Constitution;
4. By and through their affirmative aggregate acts and policies with respect to fossil fuels and the national energy system Defendants have discriminated against Plaintiffs' respect to Plaintiffs' fundamental rights in violation of the equal protection of the law guaranteed by the Fifth Amendment to the U.S. Constitution. Defendants' aggregate acts and policies with

respect to fossil fuels and the national energy system cannot and do not operate to secure, and are not narrowly tailored to achieve, a more compelling state interest than Plaintiffs' rights, nor can such aggregate acts and omissions satisfy intermediate scrutiny, or any other level of scrutiny, including rational basis review;

5. By and through their affirmative aggregate actions, policies, and omissions with respect to fossil fuels, climate change, ocean acidification, and the national energy system, Defendants have violated the Public Trust Doctrine by abdicating control over and causing and allowing substantial impairment of public trust resources, and abrogating their duty to manage such resources with prudence, loyalty, and impartiality, and thus violated Plaintiffs' substantive due process rights guaranteed by the Fifth Amendment of the U.S. Constitution; and
6. Section 201 of the Energy Policy Act, on its face and as applied to Plaintiffs, violates Plaintiffs constitutional substantive due process and equal protection rights guaranteed by the Fifth Amendment to the U.S. Constitution.

At trial, Defendants intend to pursue the following defenses:

V. OTHER LEGAL ISSUES

- (1) Plaintiffs' Second and Third Motions *in limine* (Doc. 340 and Doc. 380) seeking judicial notice of government documents are pending.
- (2) Defendants' Motion *in Limine* to Exclude Certain Testimony of Six Experts (Doc. 371) is pending.
- (3) Defendants' Motion *in Limine* to Strike Rebuttal Report and Testimony of Dr. Akilah Jefferson (Doc. 372) is pending.
- (4) Plaintiffs request the opportunity to file post-trial briefs.

VI. PROPOSED AMENDMENTS TO THE PLEADINGS

None at this time.

VII. EXHIBITS

Plaintiffs anticipate that some exhibits, such as videos, photographs, and spreadsheet documents, will be presented in electronic format. The Parties have organized their respective exhibits according to the following categories, and will be provided to the Court on October 19, 2018.

- (1) Plaintiffs' Exhibits –admissibility stipulated;
- (2) Defendants' Exhibits – admissibility stipulated;
- (3) Plaintiffs' Exhibits – authenticity stipulated, admissibility disputed;
- (4) Defendants' Exhibits – authenticity stipulated, admissibility disputed;
- (5) Plaintiffs' Exhibits – authenticity and admissibility disputed;
- (6) Defendants' Exhibits – authenticity and admissibility disputed.

This order has been approved by the Plaintiffs as evidenced by the signatures of their counsel. Plaintiffs respectfully request that this order shall control the subsequent course of the action unless modified by a subsequent order. This order shall not be amended except by order of the court pursuant to agreement of the Parties or to prevent manifest injustice.

DATED this 15th day of October, 2018.

Respectfully submitted,

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